

BARCLAY HOME PRODUCTS

INCORPORATED



NAVY - MARINE CORPS

MANAGEMENT TEAM SURVEY

SEMINAR IN MANAGEMENT



RENSSELAER POLYTECHNIC INSTITUTE
TROY, NEW YORK

APRIL 1966

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ABSTRACT

This is the report of a management survey of Barclay Home Products, Inc. by the Navy-Marine Management Team of students at Rensselaer Polytechnic Institute.

As indicated in this report, the demand for the products of Barclay Home Products, Inc. has outstripped production capacity resulting in late deliveries and customer unrest. This opportunity to expand sales and profits is a challenge to management to improve production volume, efficiency, and profit. Obstacles include a very competitive labor market and an old and ill-suited plant. Company organization, facilities, and management concepts were developed for, and are better suited to a competitive product market, plentiful labor, and low volume production.

In the present circumstances, Barclay must do the following:

1. Overcome its small firm attitudes.
2. Define and pursue clear company goals and objectives.
3. Develop a formal organization with clearly defined, integrated and delegated responsibilities.
4. Give more consideration to the personnel, production and finance functions relative to sales.
5. Acquire and apply adequate staff functions for integrated management of (a) personnel hiring, training, and morale, (b) production scheduling and control, (c) purchasing,

(d) market research, product variety control, and advertising, and (e) production engineering (plant maintenance, layout, equipment improvement, and materials handling).

Barclay management is largely aware of these needs and is acting on most of them. Particularly, the current effort to acquire a qualified personnel manager is an essential start on many problems. This, coupled with a hardheaded approach to product variety reduction, can permit rapid strides toward more volume, better customer service, and improved profits.

B. A. Books

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BARCLAY HOME PRODUCTS, INC.

by

The Navy-Marine Management Team
A Management Survey Submitted to
Professor R. V. Tuason
School of Management
in Partial Fulfillment of the
Requirements for the Course
Seminar in Management

Approved:

R. V. Tuason

Rensselaer Polytechnic Institute

Troy, New York

April 1966

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PREFACE

This report is the result of a management survey of Barclay Home Products, Inc. The survey was conducted during February, March, and April, 1966, by the Navy-Marine Management Team of students in the School of Management at Rensselaer Polytechnic Institute (RPI).

From the school and student point of view, the purpose of this study is to provide a practical orientation for the academic training at the school and to provide familiarization with the practice of management consulting. The management of Barclay Home Products, Inc. kindly made their firm available to the team for this purpose. The immediate goal sought by this report, in pursuit of the above purpose, is to contribute practical suggestions for the betterment of the firm surveyed.

The generous assistance and cooperation of the entire firm at Barclay greatly facilitated this survey. Particular acknowledgement is given to the company owners, Messrs. Alex and Louis Buchman, and the controller, Mr. Don Butler, for their sincere interest and the many hours of their time graciously contributed to the efforts of this team.

This team is also deeply indebted to Professor R. V. Tuason for his guidance and assistance, and to Mrs. Betty Jones for her prompt and tolerant typing of numerous drafts, notes, and corrections.

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PART I

INTRODUCTION AND HISTORICAL REVIEW

1. Introduction1.1 Need for Change

A firm which survives and grows over a period of years despite handicaps, competition, and general adversity, will naturally develop practices and procedures which are rule-of-thumb and habitual, because they have been part of a successful past. This does not mean, however, that such practices are necessarily the best nor even that they are pertinent to the current environment. The opportunities and constraints in the business world continually change and competitors become more competent. Merely to retain its relative position in the industry, a firm must itself constantly improve.

1.2 Challenge

The present economic environment invites and challenges Barclay Home Products, Inc. to grow in sales volume, productive efficiency, profitability, financial strength, managerial skill, and market respect. Failure to meet this challenge in all its facets could leave Barclay incapable of surviving a later economic downturn despite its current profitability. In the current seller's market, Barclay finds itself in the unaccustomed position of being able to sell more than it can produce. This results in late deliveries which damage the desired image of consistent good service. It is also

causing Barclay to stretch all its resources of production facilities, finances, and personnel including labor, supervision, and management.

1.3 Suggestions

It is the intent of this report to be constructive and provocative, to facilitate the efforts being made by Barclay management, and contribute to the future success of Barclay. This report offers no simple, sweeping solutions to current problems. Rather, it reflects a free-ranging inquiry into many facets of the firm's operations, always asking "Why?" and then offering suggestions wherever the answers were not entirely satisfying to the questioner.

2. Company Organization

The top management organization of Barclay is not readily described by a conventional organization chart. Mr. Alex Buchman, with offices in New York City, is the company president and chief sales executive. Mr. Louis Buchman, with offices in Cohoes, New York, is the secretary/treasurer and chief manufacturing executive. Beyond this, nearly every function and subfunction of conventional management organization is split with some facets handled by each of the above two officers. Expediency based upon geographical location tends to be the criteria determining which activities are handled by which of these two officers. For example, the controller, located in Cohoes, receives financial policy

direction from and supplies financial information to Mr. Alex Buchman, but is administratively supervised by Mr. Louis Buchman and is also the administrative assistant and production control supervisor for Mr. Louis Buchman.

3. Historical Review

3.1 The Firm

Barclay Home Products, Inc. was originally organized in 1940 to manufacture comforters in Brooklyn, New York. As the firm grew and required more space, its manufacturing facilities were relocated to Cohoes, New York. Barclay has experienced several cycles of expansion and retrenchment, with financial ups and downs. At present, the company has its main plant in Cohoes with satellite manufacturing facilities at Hoosick Falls, New York, and has recently acquired a modern manufacturing facility in North Carolina which should significantly increase the firm's manufacturing capacity as well as overcome shipping expenses to southeastern markets. The present owners and top management are two of the three original owners of the firm.

For the past few years, Barclay has experienced steadily growing sales volume with improving profits. At present the company manufactures mattress pads, patchwork quilts, coverlets, comforters, pillows, associated accessories, a similar line of infant goods, and sleeping bags.

3.2 Prior Surveys

A study of Barclay Home Products, Inc. similar to this one was conducted in the Spring of 1960, and a production analysis was made in the Spring of 1964 — both by student teams from the School of Management, Rensselaer Polytechnic Institute. Although some of the recommendations herein appear repetitious of those in the prior survey reports, it is assumed that the prior recommendations were acted upon at the time to the extent that they were pertinent at the time. Their repetition in this report only signifies that, under the presently existing circumstances, further action is now warranted in accordance with the recommendations herein.

PART II
PRODUCTION

1. Organization

The essential purpose of Production in any firm is to help meet the objectives and attain the goals of that organization. It accomplishes this by taking inputs and altering their composition to form a saleable product of higher value. To do this requires a complex matching of men, machines, and materials. Needless to say, coordination and control are of vital importance to this process. Proper organization, then, is vital to the success of the production function. Viewed in this light, organization is assigning responsibility with commensurate authority to carry out that responsibility.

1.1 Findings

Investigation of the Production Department has produced an impression of the formal organization of the department. However, this impression may not be entirely correct, because in the majority of cases clear lines of authority are not established. There is a great deal of confusion among supervisory personnel as to just what they are responsible for and to whom they are responsible. The 4th floor production and plant wide shipping are the responsibility of one person, while the 3rd floor production and factory receiving, store keeping, and stores control are the responsibility of another manager. Both supervisors emphasized that they are on co-equal

status and that neither was higher in the decision making chain. However, in certain instances it was emphasized by one or the other that they were responsible for the entire production. Authority appears to be inconsistent with responsibility.

The pad and patch work production unit, located on the 3rd floor, appears to be broken down into functional areas. Likewise does the 4th floor which produces comforters, pillows, and accessories. However, many of these areas do not have supervisors with clear-cut responsibility for control and coordination to affect a smooth and efficient operation and, in other areas, supervision is completely lacking.

Organization at present appears to follow the pattern of Exhibit II — 1.

The president of the union local is a supervisor in the production department.

There are many conflicts between personnel, and confusion is prevalent throughout much of the organization. Of course, in a dynamic and growing firm, there is always conflict and confusion due to change. Thus, Barclay is not unique in this area. The goal should be, however, to reduce this conflict to a minimum. By doing this, all employees will take a more concerted interest in the well-being of the company.

1.2 Analysis

Organization is the key to success of any functional group. Expected results from a properly organized and controlled team are numerous. Some of the most obvious are iterated below.

1. Proper organization and delegation of authority frees top management for more creative activities such as policy making, goal determination, and orderly decision making without the need for crisis management. This is exceedingly difficult to accept. Terms such as creativity, policy making, and goal determination are elusive. One engaged in these activities, if not properly conditioned, feels unproductive. Making snap decisions and solving simple problems in a rapid-fire manner appear more appropriate to an active person. However, these simple procedures should be delegated to lower echelons. Then top management can concentrate on problems that have difficult solutions or, in many cases, may not have a solution at all.

2. The people who do the work are the most capable of improving the system. Establishing responsibility produces incentive for advancement which will cause supervisors to look for better ways to do things. Proper supervisory activities will motivate the worker, who in turn will promote improvement and efficiency.

3. Formal organization will reduce ambiguity in that workers know who is their supervisor. This increases worker satisfaction with resultant higher productivity.

4. Clearly defined responsibility adds prestige and status to the job, which is a form of incentive.

5. Designated authority establishes responsibility so that budget variances can be maintained and responsibility

for abnormal operations pinpointed. Abnormal variances from budgeted direct labor costs are a serious risk to management and must be controlled.

6. High turnover of personnel is a persistent problem. Proper organization will allow supervisors to devote more attention to human relations. This personal attention should contribute to a stabilized work force.

7. The company is rapidly growing and is expected to continue to do so in the foreseeable future. The larger an organization becomes, the more formalized its structure must be to assure adequate decision making. Management by exception becomes a necessity, not a luxury. Authority and responsibility must be delegated.

The interest of the president of the union should be to secure the best benefits for the workers. This being the case, it would appear that he would not always work for the best interests of management. The positions of supervisor and union president are incompatible.

Due to the inadequate organization, loss of certain key personnel through a natural disaster, for instance, could cause internal strains to the point of threatening the survival of the firm. Moreover, a number of supervisors and key personnel are at or close to the age of retirement. There is little indication that younger personnel are being groomed for these jobs, nor are there indications that the problem has been seriously considered.

1.3 Recommendations

1. It would be presumptuous of this group to recommend a specific and concise organization for production. There are probably as many different types of organizations as there are companies, each tailored to meet the objectives that management interprets and projects. In other words, top management usually tailors an organization to fit its personality.

What is recommended, however, is that a more formal, structured organization be adopted. Supervisors should be designated in various sections of the production department. Specific responsibility commensurate with authority should be given, based on sound principles of organization.

2. The president of the union local should not hold a supervisory position. Since his loyalty should be to the worker, it is hard to believe that he can work to the best interests of management. Interviews have disclosed that the majority of his time is consumed in taking care of union matters. Apparently his supervisory duties go begging, or his supervisory position is abstract. Perhaps the company feels that this set-up produces good labor-management relations and is a cheap way of securing them. However, this type of union representation must ultimately bring labor dissatisfaction. Dissatisfied employees are poor producers. This is not to question the capability of the president of the local. It merely states that the two positions are incompatible.

3. It is specifically recommended that a manager for over-all production be designated. He should be held responsible for all facets of production to include plant engineering, industrial engineering, production planning and control, manufacturing, and quality control. Commensurate authority must be delegated to him so that he is in a position to make appropriate decisions with ample freedom of action.

4. Each area of interest in production, to include plant engineering, industrial engineering, production planning and control, manufacturing, and quality control, should have a responsible supervisor. Moreover, each of these subdivisions should know exactly what they are to do or not to do. Only in this way can all the functions necessary to production be performed adequately and efficiently.

2. Production Planning and Control

Production planning can be defined as the formulation of a predetermined course of action which seeks to maximize total effectiveness. Production control is defined as the task of coordinating manufacturing activities in accordance with the above plans so that preconceived schedules and courses of action can be attained with optimum economy and efficiency.

The purpose of effective production planning and control is, then, to achieve the following:

1. Maximize customer satisfaction by insuring prompt assembly and delivery of required products.

2. Reduce the per-unit labor and material cost with optimal utilization of productive facilities and materials.

3. Reduce the per-unit overhead cost (a larger flow of production can be handled in the same period of time).

4. Stimulate better management through properly instituted scheduling to allow a larger portion of management's time to be spent on more creative duties.

Through the use of proper production control, levels of inventory such as raw materials, work-in-process, and finished goods can be maintained at a reasonable level to allow for maximum utilization of working capital.

Effective production planning and control is of prime importance to the firm's goal of customer satisfaction through proper use of labor, machines, and materials.

2.1 Findings

1. Scheduling and expediting. The scheduling of production at Barclay is at present a divided responsibility. The pad and patch work on the third floor is scheduled by the assistant production supervisor of that floor. The comforters, pillows, and accessories are scheduled by the fourth floor production supervisor.

The scheduling process is initiated after customer orders are received at the Cohoes plant by mail or telephone from the New York sales office, or directly from the customer. These orders are received by the production planning and control section which generates the necessary paper work to start

the process. Initially, this section separates the orders for either the third floor or fourth floor production. Copies of the orders are then sent to the appropriate production supervisor to determine type and quantity of material needed if the goods are to be manufactured. If production is necessary, the purchasing agent is then consulted to confirm the availability of piece goods necessary for the order, and a copy of the order is sent to IBM for accounting, billing, and inventory purposes.

If production is required, the date and sequence of work scheduling is determined by the supervisors concerned. The decision of what is to be produced on the third floor is governed by many factors, such as: due date of order, amount and style requested, and the identity of the customer. Larger, more important accounts are usually handled with first priority unless the due date allows for a delay in scheduling. Large orders and popular styles are then processed if due dates are such to warrant work scheduling, and lastly, smaller orders are processed if they cannot be filled with the current finished goods inventory and a standard production run is practical and economical. Small orders of slower moving styles not available in finished goods are withheld from production in hopes of substituting a suitable replacement, or until a sufficient quantity is required to justify a production run.

If an order can be filled with inventory that is available in finished goods, it is sent to the packing section

for packaging and packing in preparation for shipping. However, if the order has to be manufactured, the assistant production supervisor determines the order or sequence in which these goods will be incorporated into the manufacturing schedule. After it is decided to manufacture required goods, an order to issue piece goods is given to piece goods inventory and the production process begins. Once an order is issued to piece goods, the process is allotted 3 to 5 days for completion.

In the case of pads, orders are filled from the cut goods which require only the binding before completion. At this point, the pads are ready for packaging and packing which eliminates the additional handling of going first to finished goods inventory. In the case of patch work, all completed work is sent to finished goods inventory for storage, and orders are then filled from this inventory.

Production scheduling on the fourth floor is less involved, since single orders of even one article, such as a comforter, are programmed for production.

2. Receiving. The receiving section has the responsibility for receipt of all incoming materials necessary to the production of Barclay's products. In the case of incoming piece goods, all such materials are accepted at receiving and put into piece goods inventory. No internal inspection is made of the material upon arrival unless the container is noticeably damaged. The first time piece goods

are actually inspected is when the container is broken open to process the contents.

3. Shipping. The responsibility of the shipping section is to specify and secure transportation that best satisfies the firm's shipping requirements. Types of transportation are dictated by the size, weight, and destination of shipping orders. In order to satisfy customer requirements, the shipping section normally secures transportation daily to arrive at Barclay's in the afternoon to pick up completed orders.

There is no difficulty in securing adequate transportation. Excellent service is experienced with all the commercial carriers.

4. Storekeeping and stores control. The function of storekeeping is the protecting and issuing, when authorized, of items used to produce a product. At Barclay's, in the case of piece goods, the issue clerk is responsible for accountability and issue.

Upon the receipt of authorization to issue goods, the issue clerk makes available the required type of material to be used from the piece goods storage area. In this section, piece goods are stored as they are received from the manufacturer in their shipping containers. Once a container is broken open to issue goods, the entire content is removed from the storage area and put into production with any excess placed in open stock bins. After the piece goods

are issued, they are considered to be in-process goods. This quantity and style of material is then taken from the piece goods inventory-on-hand and coordinated with the report system.

This then ends the responsibility of the storekeeper once the goods are reported to be in-process.

2.2 Analysis

The production planning and control section now existing at Barclay is little more than a title and consists of clerical work only. However, personnel are generally aware that production planning is an important function. In most cases, valid procedures are established but are not followed resulting in erroneous information and decreased efficiency.

1. Scheduling and expediting. With the present system of both floor supervisors doing their own production scheduling, many areas within their sections have been neglected because of insufficient time available to properly supervise. Some of these areas are as follows:

1.1 Confusion in the finished goods section can be greatly reduced if some of the patch work completed can be sent directly to packaging after inspection. Approximately 50% of all the patch work completed can be identified with customer requirements.

1.2 Flow of goods on the third floor appears to be inconsistent in that large quantities of cut goods seem to stack up waiting to be finished by the binders. On other

occasions, the binders had little work to do because of a slowdown in the quilting room. The assistant production supervisor has had too vast an area of responsibility to be able to supervise this inconsistency properly.

It must be noted here that the success of the centralized scheduling procedure rests on the accuracy of periodic inventory reports, and that the accuracy of these reports depends on prompt and accurate data from piece goods inventory, finished goods inventory, and shipping. This cannot be stressed too much. The computer system of reporting is only as good as the reporting elements within the system.

2. Interdepartmental coordination. An additional aid to more effective scheduling in the production planning and control section would be a much closer coordinating effort on the part of production and the sales branch. For example, in one case, orders were taken on new styles for which the piece goods had not yet been received. This has resulted in a four week delivery delay. A more accurate forecasting system of new style sales is needed to allow ample time for proper work scheduling. This can only be done with a more thorough coordinating effort of all branches concerned.

Forecasting of future production requirements is a prerequisite to smooth and efficient operations. A properly functioning section could enhance this activity by coordination with sales.

Exhibit II — 2 includes the general areas of

responsibility of production planning and control. It by no means depicts the solution to Barclay's problems, nor does it include all the essentials necessary for such a section. It does, however, present some of the fundamental ideas of good management practices.

Information has been said to be the raw material for intelligent decision making. Computers and data processing equipment are not decision makers. They do not reach out and collect the information; it must be fed to them in the proper form, in the right amount, and at the appropriate time.

Barclay is planning to acquire a greater capability for handling information by getting an IBM-360 computer in the near future. However, unless the production planning and control section makes better use of such equipment, production will continue to lag in the decision making area.

As Exhibit II — 2 shows, production planning and control should rely heavily on the IBM-360 for information with which to make intelligent decisions. Barclay at present has a fair system, but indications are that people are fighting the system. It will not function by itself; it must be made to work. An example of proper scheduling and control might be thus; once an order is received, there should be applied some decision rules.

- a. Check due date of order.
- b. Is the order in finished goods inventory?
- c. If not, is it in process?

d. If not, and due date is critical, can there be a substitution?

e. If not, what priority should be assigned?

f. Are raw materials available?

g. Schedule for production based on due date and priority.

Naturally, the function of production planning and control does not end with scheduling but continues until the order is loaded aboard the carrier.

Continuous monitoring of work-in-process is required to expedite all orders through the line. A type of numerical priority system with each job order could be used as a tool by the expeditor. Further, production scheduling should be flexible. That is, it should make room for interchanging orders, inserting orders or cancelling altogether as the situation requires, but someone has to stay on top of everything, all the time. It's a full time job.

Finished goods inventory represents much-needed cash and should be closely controlled. Moreover, style changes are likely, and do occur, decreasing the intrinsic value of the inventories. Closely controlled inventory levels can realize greater savings for less effort than can any other area. Inventory policy, however, must be explicitly established and rigidly adhered to.

Exhibit II — 3 depicts weekly units of production of pad, patch, and coverlets, and the amount of direct labor

dollars applied to products for a twelve week period. Units of output per direct labor dollar per week are calculated. It is apparent from the exhibit that direct labor tends to remain constant regardless of production output. As production is increased, units of output per direct labor dollar are subsequently increased. This suggests that more efficient use of labor can be realized if scheduling and control can be smoothed out. A proper functioning production planning and control section can forecast, schedule, and expedite in order to realize the most efficient use of labor and materials.

3. Shipping. The shipping section appears to handle present requirements adequately in that they are able to ship all produced goods with a minimum of difficulty. However, this section's work space tends to be overcrowded and congested. It is noted that this particular problem of space is not limited to the shipping section but occurs throughout the plant. With this in mind, if production flow is increased by 10%, it would be extremely difficult for shipping to handle the increase because of its inadequate floor space.

4. Storekeeping and stores control. An extremely large amount of piece goods appears to be available in the closed stock inventory. Additionally, large amounts of broken piece goods are available in the open stock bins. There seems to be a large percentage of this material on hand that moves very slowly, if it moves at all.

It appears that although a large amount of piece goods are available, only a small portion turn over consistently leaving large quantities remaining in inventory for long periods of time. Goods remaining in inventory with little or no turnover cannot justify their existence in the system. Since the cost of materials used in the manufacture of products generally exceeds 50% of the total cost to manufacture, the relative importance of this function is evident.

Two separate locations for handling of piece goods inventory are being used. It can be seen that with two different locations of piece goods, confusion can enter into the picture.

2.3 Recommendations

1. Scheduling and expediting.

1.1 To improve the current inefficient scheduling by separate and individual action of the third and fourth floor production supervisors, it is recommended that a more formal and centralized production planning and control section be established to plan and control the production efforts of the entire plant. This section should come under the production supervisor and be responsible for scheduling and controlling all production.

1.2 It is recommended that greater use and reliance be placed on the data processing equipment as an aid to efficient scheduling and inventory control. Through the use of

current and accurate inventory reports on piece goods, work-in-process, and finished goods, one individual can determine all the necessary production scheduling, orders to be filled with current finished goods, and possibly orders to be filled with goods presently in-process.

1.3 Closer coordination between the New York Sales Office and the manufacturing organization should be practiced. Although coordination is now receiving greater emphasis, indications are that the two offices do not fully understand nor appreciate the problems of the other.

1.4 A more accurate method of forecasting based upon historical data, seasonal fluctuations, market research, etc., should be instituted. Only in this way can production be smoothed out, resulting in more efficient utilization of labor and materials.

1.5 Customer identification should be shown with each order being processed through the plant. Possibly 90% of all finished patch work can be packaged directly from inspection if this were accomplished. This would reduce the additional handling in the finished goods section.

2. Receiving. It is recommended that all materials be inspected by the receiving section upon receipt. If this is not feasible at the receiving station, it should be accomplished by inventory personnel to ascertain if the correct quantity and quality of materials requested have been received. A plan for statistical acceptance sampling should be adopted

if 100% inspection proves to be too costly. This would preclude any delay in production at a future date when these materials would be required. If an incorrect shipment had been made or if the shipment included sub-standard materials, this could be corrected prior to the scheduled date of processing.

3. Shipping. Additional floor space can be gained if other recommendations are incorporated which will be discussed in a later section. Briefly, a mere increase in work flow and finished patch work processing will alleviate some congestion immediately adjacent to shipping in the finished goods section, allowing shipping to expand in floor space.

4. Storekeeping and stores control. If the turnover rate of piece goods is significantly small, an attempt should be made to deplete the inventory of these goods through the manufacture of seconds, or attempts should be made to keep such styles to a minimum if not discontinued completely.

It is also recommended that the different locations of piece goods be incorporated into one. Possibly, upon receipt of piece goods from the manufacturer, these goods could be opened and placed into bins to allow for general accountability and inspection. Additionally, when goods are issued for production, any remainder can be returned to its initial bin for accountability and use later.

3. Plant Layout

An important aspect of a production system is plant

layout. It is essential that the arrangement of men, machines, and materials be such that the resulting physical production system will operate in an effective and efficient manner. Therefore, the primary objective of plant layout is to optimize the arrangement of the men, machines, materials, and supporting services so that the value created in the production system for a given cost is maximized. In addition, the plant layout should satisfy the needs of the workers, management, and others associated with the production system. There are also a number of specific objectives which are necessary in the development or evaluation of good plant layout. These include: minimizing materials handling; reducing hazards affecting employees; providing balance in the production process; minimizing interference from machines; increasing employee morale; utilizing available space; utilizing labor effectively; and providing flexibility for possible re-layout.

3.1 Findings

The layout of production facilities at Barclay is governed primarily by the product being manufactured. Manufacturing is accomplished on two of three floors occupied by the main plant. The manufacturing operations conducted on the third and fourth floors are essentially separate and distinct production systems. The only common support activities to these two manufacturing floors are raw materials inventory consisting of piece goods and garnetting materials, the data processing installation, and the shipping department.

On the third floor where pad and patch are manufactured, the men, machines, and materials are generally arranged according to the sequence of operations required to produce these two products. Since the manufacturing process for pad and patch are essentially identical, the integration of these two products into a single production facility is considered appropriate for economical operations. The volume of production on the third floor is high, which further supports the use of a product layout. While the product specifications vary, there are standard sizes designated, and a relatively few standard quilting patterns in each size, thus permitting the effective use of the product type layout. All production operations required to manufacture pad and patch are conducted on the third floor with the exception that raw materials for garnetting are blown up from the first floor to the garnetting room. Exhibit II — 4 shows the approximate plant layout of the manufacturing operations on the third floor.

The fourth floor is utilized for the manufacture of pillows, comforters, accessories, and the Freitag line. The manufacture of pillows is accomplished in a relatively small area, and is essentially a product type layout. It must be noted that the manufacturing process for pillows is built around a patented machine that produces the filler material, and that few other manufacturing operations are required. The comforter and Freitag manufacturing processes are both

relatively low volume operations. The layout of facilities to manufacture these products is essentially of the product type also. The comforter business has been on the decline in recent years, and there is a considerable amount of under-utilized manufacturing machinery presently installed on the fourth floor. See Exhibit II — 5 for the general layout of manufacturing facilities on the fourth floor.

The fifth floor is presently utilized for both raw materials and finished goods storage. Overflow finished goods inventory from third and fourth floor production is stored at one end of this floor. A large portion of this floor is utilized for piece goods inventory. Also, some excess capital equipment such as sewing machines is stored on this floor. At present, a small portion of the fifth floor is being utilized for the production of sleeping bags under government contract. This production facility is considered a temporary installation by Barclay management. There is also some excess space on this floor. See Exhibit II — 6.

3.2 Analysis

The following analysis is based primarily on the generally accepted specific objectives of good plant layout.

1. Materials handling. Generally the layout of facilities on the third floor permits effective materials handling during the manufacturing process. However, some type of materials handling involving carts of several descriptions is required after each major manufacturing operation.

There is no short term solution for reducing the requirement to handle materials after every manufacturing operation, however.

There also appears to be insufficient space for cut stock work-in-process inventory on the third floor. Therefore, on many occasions the aisles for materials handling equipment in this area are either too narrow or completely closed.

Further, "seconds" finished goods inventory on the third floor is located in the raw materials inventory area, thus requiring the movement of "seconds" through the manufacturing facilities to the other end of the building for storage and back again for shipping. However, plans have been developed by the Barclay management to relocate the "seconds" finished goods inventory to the fifth floor. This will alleviate this situation considerably and this report fully supports this plan.

On the fourth floor, the only serious materials handling problem noted was in the finished goods inventory. While no materials handling equipment was utilized in this area, the employees working the inventory and making up orders for shipping experience considerable difficulty, due to clogged aisles in this area.

Since the main plant is located on the upper floors of the building, all raw materials coming into the plant, with the exception of garnetting materials, and all finished goods

leaving the plant must be handled by elevator. However, elevators appear to be strategically located. Moreover, availability is enhanced by a continuous conveyor which services the finished goods inventories on all three floors and the shipping department located on the third floor. Mechanized materials handling equipment, such as fork lift trucks, cannot be utilized since the maximum floor load permitted is 100 pounds per square foot. A fork lift truck is effectively utilized on the first floor for the handling of garnetting raw materials.

2. Hazards affecting employees. This area was not investigated in any detail. However, no hazards of a gross nature were noted.

3. Interference from machines. At the main plant, only two operations are of a nature that cause interference that would adversely affect worker performance. These operations are the garnetting and quilting room processes. The third floor garnetting, which creates a dust problem, is isolated in a separate room away from other manufacturing operations. However, on the fourth floor, garnetting is located in the same room with the pillow filling operation. It is believed that this situation could present an interference problem to the pillow operation but since, at the present time, the garnetting machine is in operation only on an intermittent basis, it does not present a significant problem.

The quilting operation on the third floor creates excessive noise and vibration. However, this operation is isolated from the other manufacturing processes, and the floor has been reinforced to absorb vibration. Therefore, this operation does not contribute any interference to worker performance.

4. Balance of the production process. Interviews with key production personnel indicate that bottlenecks which occur in production are caused primarily by skilled labor shortages and absenteeism, rather than from an imbalance in the production process. The shortage of labor and other associated labor problems are covered in another section of this report.

Since production on the fourth floor was at a relatively slow pace during the course of this study, no bottlenecks were noted. However, on several occasions, production bottlenecks were observed on the third floor. These occurred in the binding operation. While it is recognized that production on the third floor was running behind schedule and that there was a shortage of qualified sewing machine operators, this manufacturing operation in the pad and patch production process permits wide flexibility in layout. There is little cost involved to add or reduce the number of sewing machines available in this operation. Further, at the time these bottlenecks occurred, there were sufficient work stations available. There is no logical reason why this particular

operation should ever cause a production bottleneck. With the flexibility in layout available, it is essential that proper scheduling of production in conjunction with the assured availability of qualified sewing machine operators be accomplished to correct this situation.

5. Employee morale. The layout of facilities generally permits workers to converse with one another. Recognizing that the plant is located in an extremely old building, there is little that the Barclay management can do to provide a more favorable plant environment short of moving from its present location. However, the employee support facilities provided by management leave a great deal to be desired. Areas provided for canteen services and smoking are unattractive to say the least. The toilet facilities are even worse. While the plant facilities are antiquated, there is no excuse for not providing adequate space and attractive surroundings for these employee support facilities.

6. Utilization of labor. Generally, the layout of facilities provides effective utilization of labor. While some delays were observed, such as sewing machine operators out of material, or machine breakdowns, these problems cannot be attributed to poor plant layout.

7. Providing flexibility. There are several operations which decrease the flexibility of the existing plant layout. These include: quilting, which requires a reinforced floor; garnetting, which must be fed from the first

floor and must be isolated because of dust hazards; and the maximum floor loads permitted in the plant, which restrict piece goods storage. However, it must be recognized that these restrictions to flexibility cannot be altered by the re-layout of facilities. These restrictions are inherent in the production facility itself. There are many operations, such as sewing, cutting, seaming, etc., that permit the re-layout of many operations with a minimum of cost. The present layout of facilities, particularly in the manufacturing operations on the third floor, appear to have been designed with flexibility in mind.

8. Utilization of available space. As indicated in previous discussions regarding plant layout, there are some crowded conditions in both the third and fourth floor production layouts. On the third floor, the storage of "seconds" finished goods inventory in its present location reduces available space for piece goods inventory, thus requiring large quantities of piece goods to be stored on the fifth floor. Also, on the third floor, the work-in-process inventory is crowded into a relatively small area which is insufficient to meet present work-in-process requirements. Further, an automatic cutting machine which is presently under construction is to be installed in this area. This new machinery will require more space than is presently required by the manual cutting operation.

The shipping department located on the third floor

has also indicated the need for additional space for temporary storage of partially filled orders. Some finished goods inventory on the third floor must presently be stored on the fifth floor because of insufficient space. Further, the fifth floor is also used for overflow finished goods inventory from the fourth floor. The requirement to operate a functional inventory such as comforters from two floors is not considered to be efficient. Since there is some excess space available on the fifth floor, and a possibility for re-layout in some areas on the third and fourth floors, it is feasible to consolidate inventory. During the conduct of this study, the excess space on the fifth floor has been reduced considerably as a result of recent purchases of piece goods, which could not be stored on the third floor.

3.3 Recommendations

The recommendations indicated below are general in nature, and are not intended to be so called "school solutions". They are designed to indicate possible areas where the management at Barclay should concentrate effort, and to indicate what is considered to be the best direction in which to apply this effort.

1. Materials handling.

1.1 Long range plans at Barclay should consider the possible use of more sophisticated machinery that would have the capability to combine several of the present

manufacturing operations, thus eliminating the need for some handling now being done between operations.

1.2 Included in paragraph 4. below is the provision for more work-in-process inventory space for both pad and patch cut stock which will alleviate crowded aisles in this area.

2. Balance of the production process.

2.1 Specific recommendations concerning production scheduling and labor procurement problems which influence the balance of the production process are contained in other sections of this report.

3. Employee morale.

3.1 A clean-up and paint-up campaign should be initiated to improve employee support facilities such as toilets, smoking areas, and canteen service areas.

4. Utilization of available space. The following recommendations pertain to the re-layout of facilities. Exhibits II — 7, II — 8, and II — 9 show the suggested re-layout of facilities to implement these recommendations. The layout of inventory on the fifth floor shown in Exhibit II — 9 is only a suggested method and is not necessarily an optimal layout.

4.1 The patch, comforter, pillow, Freitag, accessories, and "seconds" finished goods inventory should be relocated to the fifth floor.

4.2 Piece goods inventory presently located on the fifth floor should be moved to the third floor to the area

vacated by "seconds" finished goods inventory.

4.3 Pillow fill material should be relocated to the fourth floor in the area vacated by the removal of the finished goods inventory to the fifth floor.

4.4 On the third floor, additional work-in-process inventory space should be made available by shifting the binding, inspection, packaging, and packing operations toward, and into, the area vacated by patch finished goods inventory.

4.5 Provision should also be made in the re-layout of the third floor work-in-process inventory area for the installation of the automatic cutting machine.

4.6 Disposal of the excess capital equipment stored on the fifth floor should be considered.

4.7 Additional space should be provided for the shipping department.

4.8 An additional continuous conveyor should be installed to service the three floors.

4.9 The packaging operation for all pads and those patch items that are processed to fill a specific order to be shipped should be done on the third floor. The remaining finished patch items could be placed unpackaged in boxes and sent to the fifth floor finished goods inventory via conveyor. On the fourth floor, all finished goods would be sent by conveyor directly to the fifth floor inventory.

4.10 The following generally describes the approach to filling customer orders. Those orders that can be filled

either all or in part from finished goods inventory should be packaged in plastic bags, packed in boxes, and placed on the down conveyor to the shipping department. In the case of a partially filled order, the shipping department could coordinate the combination of that part of the order from finished goods inventory with that part of the order coming directly from the third floor production line to the shipping department.

4.11 It is suggested that firm control of space utilization on the fifth floor be exercised by management, since it appears that this floor is presently being used on a "hit or miss, as required" basis with no firm over-all plan for the layout or utilization of facilities.

4. Quality Control

Quality control is a means of insuring that the finished product conforms to prescribed standards. It is of prime importance to the firm because a good product tends to build customer good will and increase sales volume. Effective control of quality can prevent defective materials from being processed, thereby eliminating production time spent in producing or reworking inferior pieces. This time can then be used to increase the quantity of production of first rate products.

4.1 Findings

Performance control is incorporated at Barclay to insure that production accomplishments correspond to expected

and programmed yields. A continual inspection of quantity and type of goods issued, quilted, and cut, is conducted to match expected with actual yields of pad and patch cut stock inventory. This inspection system has only recently been established, but already the results are significant. The actual yields have improved in the cutting operations, and there has been a significant reduction in production mistakes.

A product quality inspection is conducted only upon completion of the production process. At this point, an initial determination is made as to whether a product is a "first" or a "second". If a piece is designated as a "second", it is reinspected, and should it be determined that only a small amount of repair is required to make the item an acceptable "first", repair is immediately accomplished and the item is designated a "first".

4.2 Analysis

No determination of the percentage of "seconds" an employee produces is presently made. As a result, management does not now have the capability of evaluating employee and equipment performance to determine good, average, marginal, or unsatisfactory workmanship. Percentages of "seconds" by product on the average were found to be as follows: Patch, 10%; Pad, 4-5%; Comforters, 1%; Freitag, 1%; and Pillows, 0.5%. Management's explanation of the relatively high rate of "seconds" in patch production in comparison to other product lines

is that (1) colored piece goods are used which may make the item a "second" to start with, and (2) the binding operation is more difficult than that required for other product lines.

4.3 Recommendations

1. A quality inspection should be conducted by the personnel on the cutting table before in-process goods are issued to the binders. Any defective pieces noted at this inspection could be set aside for processing at a later time with "seconds" that develop further along in the production process. This would permit the processing of all "seconds" during slack production periods.

2. A system should be incorporated whereby a defective piece or lot can be associated with the machine or operator responsible for the sub-standard work. Such a system would permit management to pinpoint quality control problem areas.

5. Plant Engineering

Plant engineering has as its major goal the design of facilities, installation and control of plant equipment, and machine maintenance. Since, in a limited survey such as this, it would be difficult to make a credible contribution in the area of design of facilities, and installation and control of plant equipment, only maintenance policies of production machinery will be discussed.

Mechanization, or the use of machines, has

revolutionized American industry and increased productivity to unexpected heights. In fact, the trend is toward complete automation. Without machines, modern industry is powerless to operate in a competitive market. However, as with all systems of production, they must be properly maintained and without a prudent maintenance policy machines will not operate at peak efficiency.

5.1 Findings

The structure of the maintenance department is exceptionally informal without direct supervision within. Responsibility appears to be broken down into the following categories.

Separate responsibility for maintenance and installation of plant facilities.

Separate responsibility for maintenance of sewing machines.

Separate responsibility for maintenance of quilting machines.

Separate responsibility for maintenance of garnetting machines.

Each person responsible for a particular function does his own purchasing of supplies and spare parts.

Operators or someone within a particular department, such as sewing or quilting, are supposed to lubricate their machines. There is little or no preventative maintenance, nor is there any maintenance schedule. Therefore, before

maintenance is performed, a failure or breakdown must occur. Records indicating such things as machine failure rates, cause of failure or percent of down time are not maintained.

5.2 Analysis

There is no immediate supervisor in the maintenance department. Personnel indicated that their immediate boss was the 3rd floor assistant production supervisor, but indications are that he is already so overburdened that he cannot exercise close scrutiny over the maintenance function.

The absence of good housekeeping practices within the working area contributes to hazards and waste. It appears that most tools, parts, and accessories are haphazardly thrown about without any plan for orderliness. This practice can cause valuable waste of time searching for a much needed tool or part.

Indications are that problems such as lack of proper lubrication, systematic preventative maintenance, and simultaneous operator-maintenance working hours contribute to an overload situation on the maintenance man. Therefore, since the machines are being operated during the hours the maintenance department is working, they are unable to properly service the machines.

5.3 Recommendations

1. Supervision. There should be an over-all supervisor for maintenance. Some advantages that would accrue from

having this responsibility defined are:

- 1.1 better coordination and control of the personnel;
 - 1.2 clear-cut maintenance policy and an organized and systematic maintenance schedule;
 - 1.3 facilitate record keeping for analysis of each machine, to determine such things as down time, failure rates and cause of failure, running costs of operating a machine, and the need for replacement;
 - 1.4 enhance coordination and requisitioning through the purchasing department, maintenance spares to be stocked as determined by usage rates from the records kept on each machine; and
 - 1.5 promote a cleaner and more orderly working area.
2. Housekeeping. To use a vernacular, there should be a "clean sweep-down fore and aft". Bin storage should be utilized for stocking supplies and spare parts. Hand tools should be under lock and key when not in use and a more rigid accountability policy maintained. Good housekeeping would eliminate waste, bin storage would facilitate good housekeeping and prevent carrying unnecessary supplies and spare parts or assure that a critical part was in stock in case of a machine failure. Close accountability of hand tools would prevent surreptitious misplacement resulting in a monetary savings.
3. Routine maintenance. A recommendation of major importance is the initiation of a systematic lubrication,

preventative maintenance, and parts replacement schedule.

3.1 The simple task of oiling of the machine itself is properly a function of the operator. However, the operators must be indoctrinated as to the importance of this function and carefully instructed on how to perform it. They should be forcefully made aware that this will prevent down time, which in turn will aid them in establishing their piece rates.

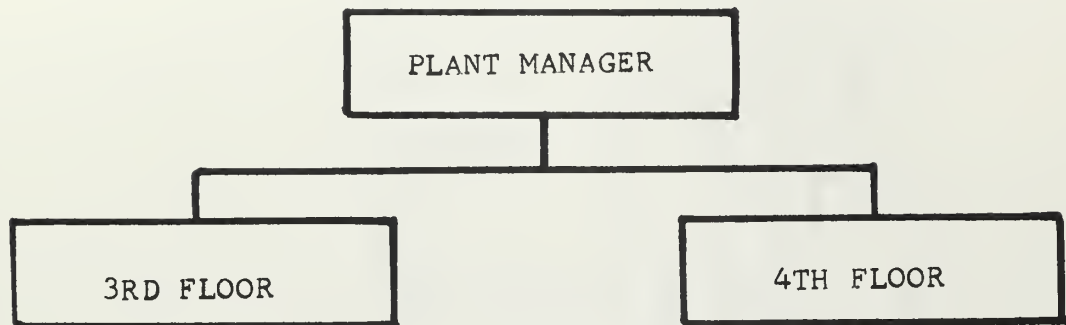
3.2 A more thorough lubrication and preventative maintenance period should be regularly scheduled. Once each week, or a period determined to be the optimum, each machine should receive a thorough going over using a system known as FITCAL (Feel, Inspect, Tighten, Calibrate, Adjust, Lubricate).

3.3 A major maintenance schedule should be initiated to replace worn parts or to prevent the machine from completely failing.

4. Records. Information is the basis of good maintenance, and record keeping is the supplier of that information. It is recommended that a form such as Exhibit II — 10, or a similar form, be kept on each machine to provide a record of maintenance, failure rate, and down time. From this, a pre-emptive maintenance and replacement policy can be established.

5. Maintenance accessibility. Work hours of maintenance personnel should be established so that scheduled maintenance time does not entirely correspond with regular operator work time.

PRODUCTION ORGANIZATION



PRODUCTION ORGANIZATION — 4TH FLOOR

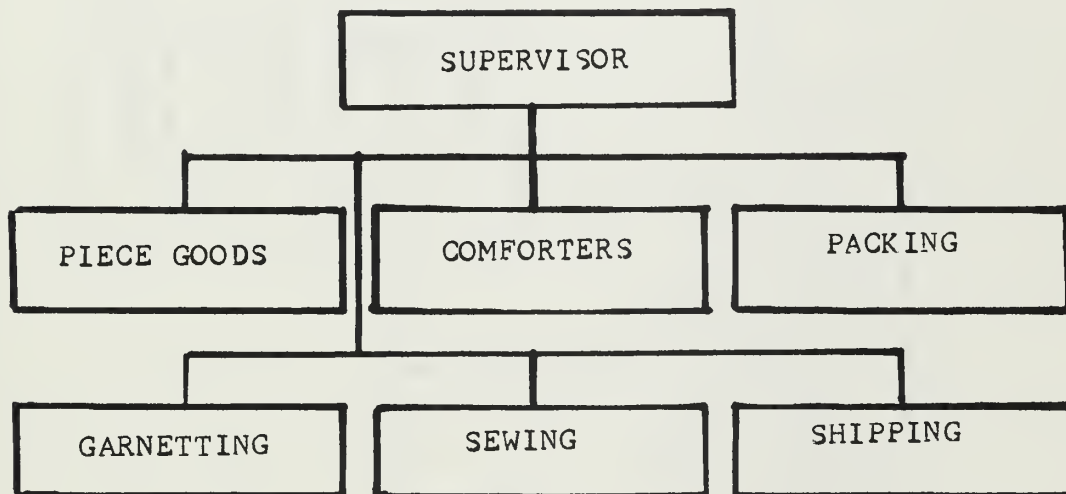


EXHIBIT II — 1a

Derived from interviews with 3rd and 4th floor production supervisors.

PRODUCTION ORGANIZATION — 3RD FLOOR

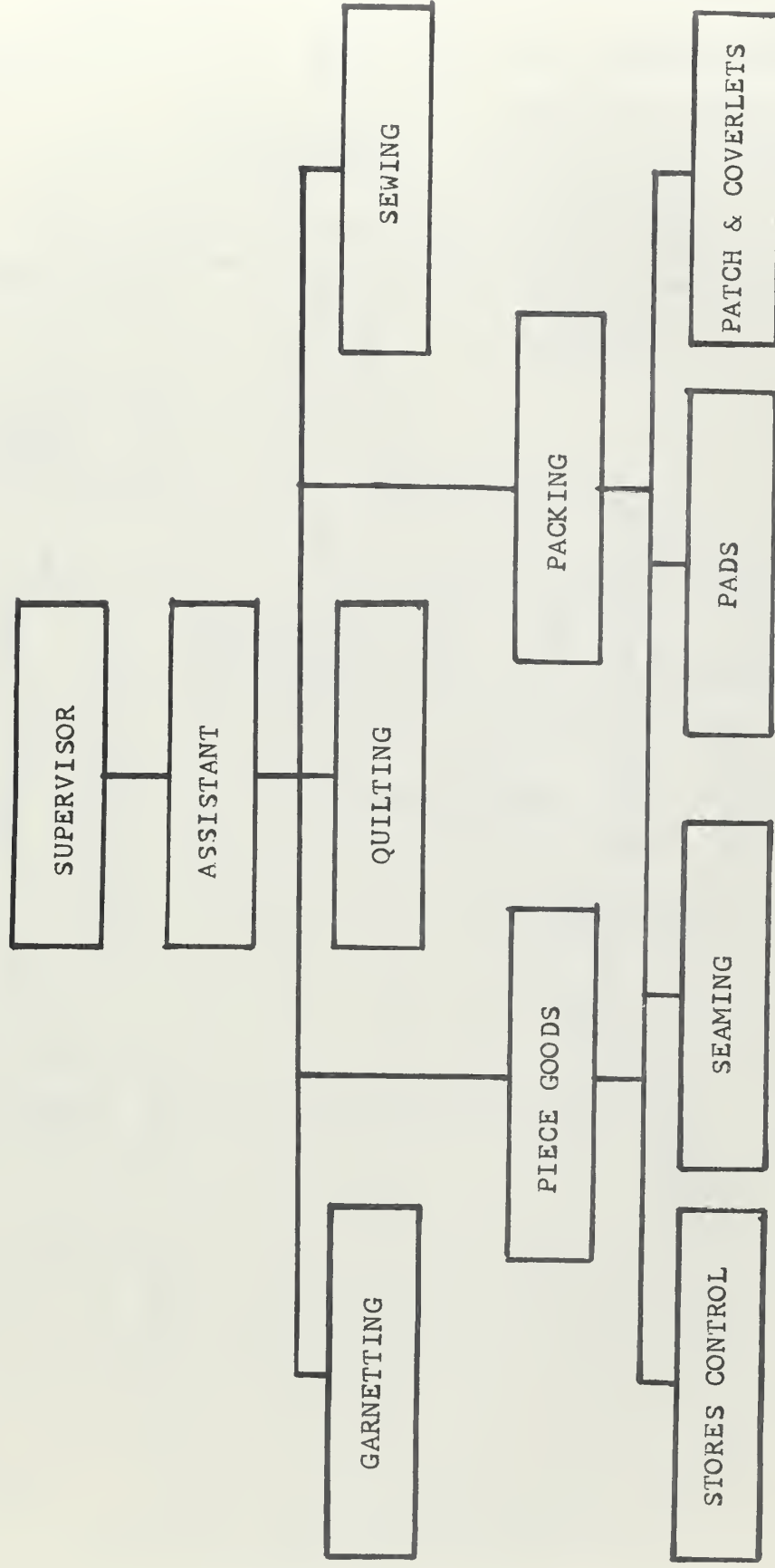
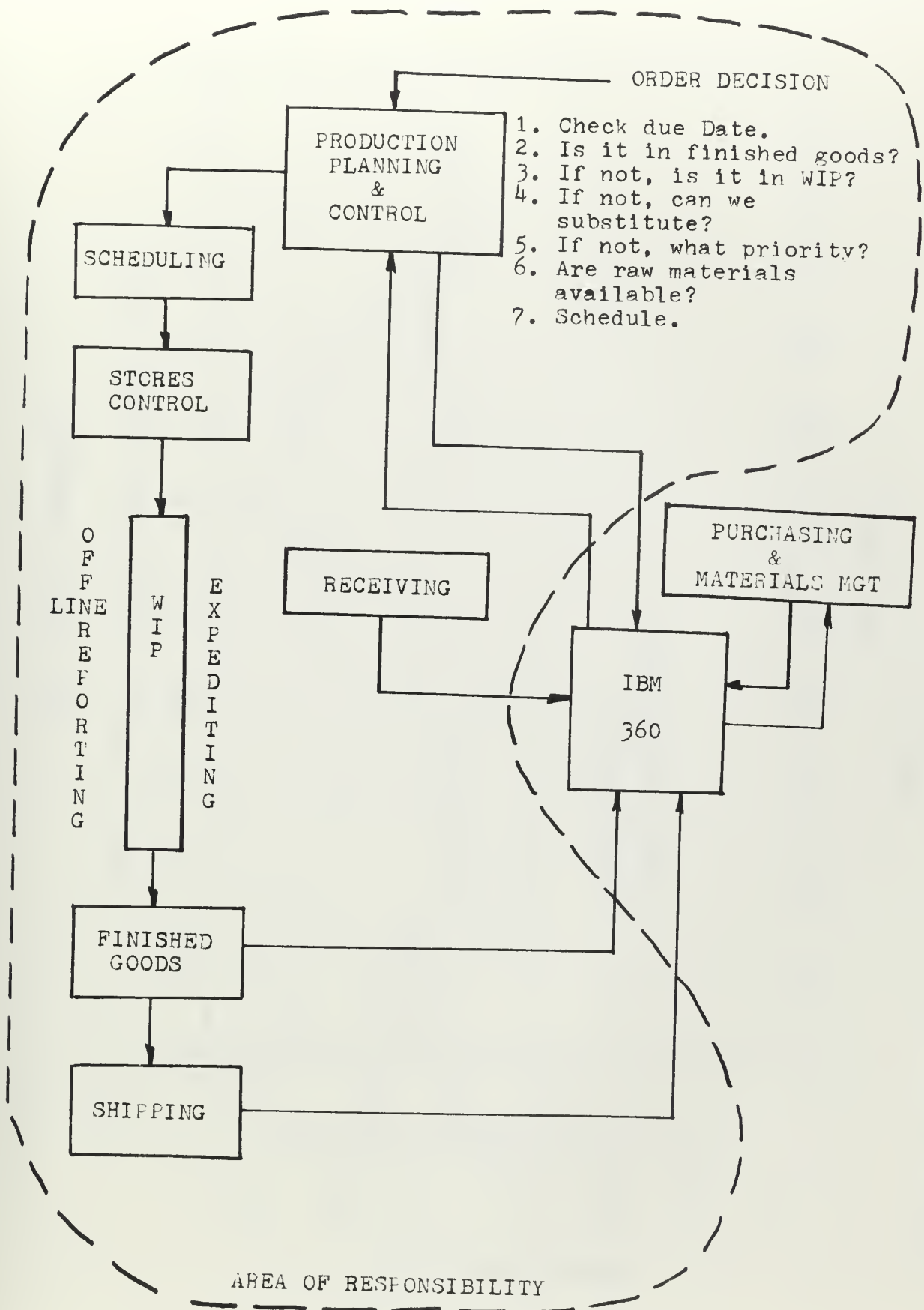


EXHIBIT II — 1b

Derived from interviews with 3rd and 4th floor production supervisors.



PAD, PATCH & COVERLET

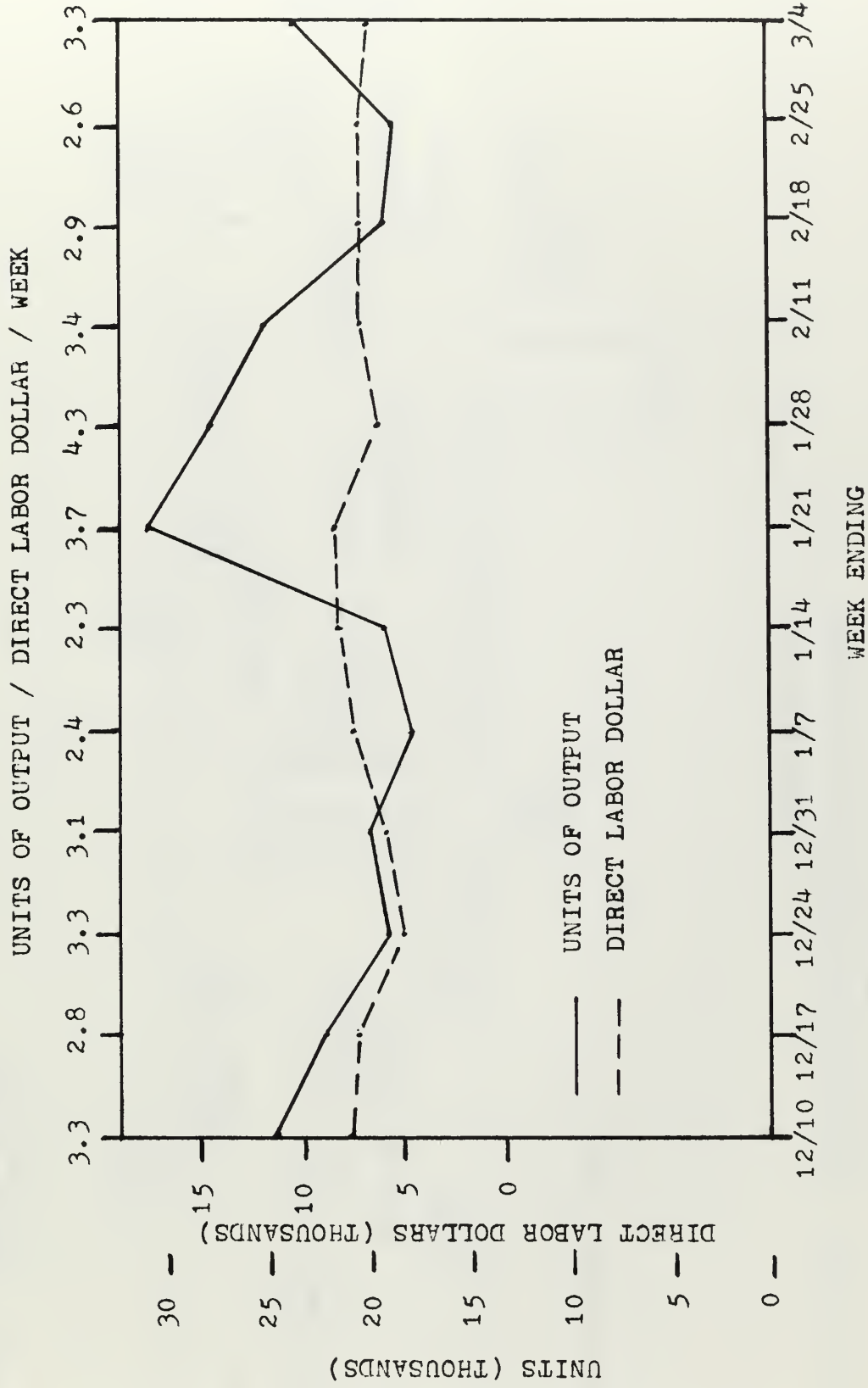


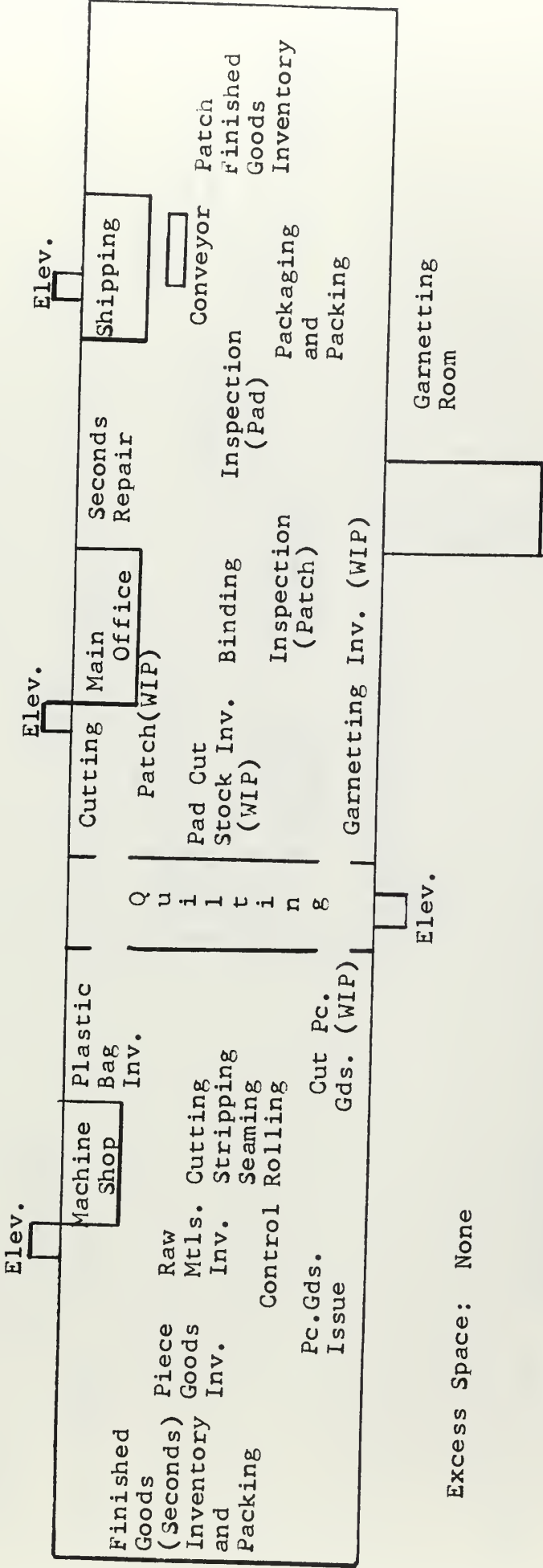
EXHIBIT II -- 3

Information derived from weekly availability report & weekly labor cost report.

THIRD FLOOR

Production: Pads
Patch

Storage: Finished Goods
Raw Materials



Excess Space: None

EXHIBIT II -- 4

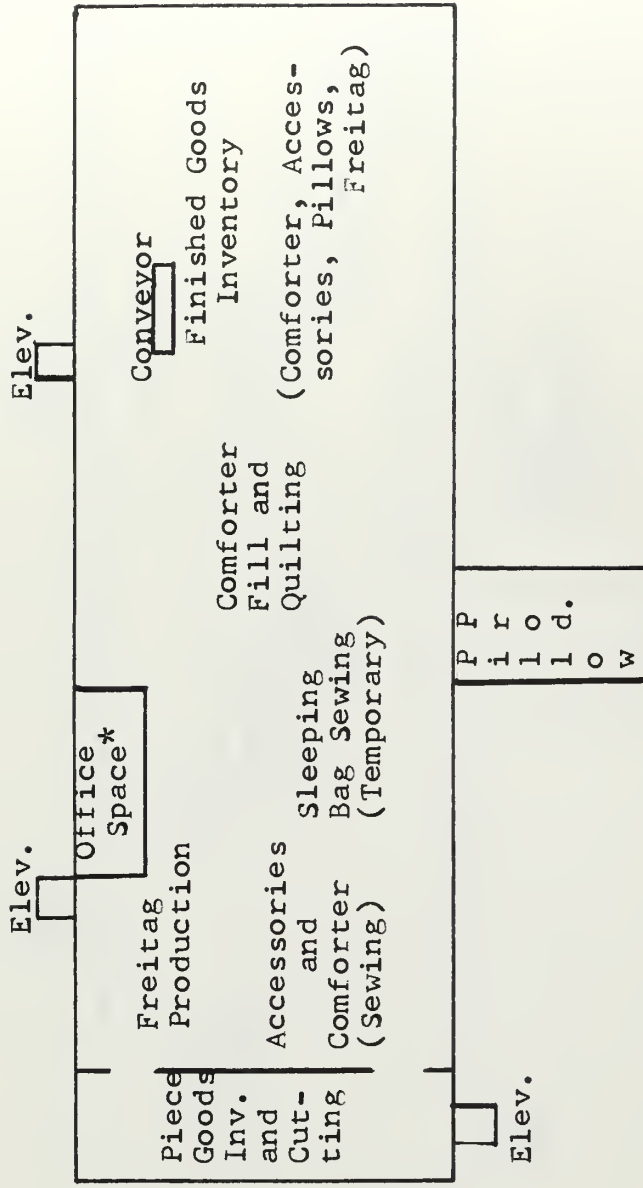
Sources of Data: Interviews with production personnel
Personal observation

FOURTH FLOOR

Production: Comforters
Freitag
Pillows
Accessories
Sleeping Bags (Temp.)

Storage: Finished Goods
Raw Materials

Excess Space: None



*Office Space: Comptroller
Production Planning and Control
IBM Installation

EXHIBIT II — 5

Sources of Data: Interviews with production personnel
Personal observation

FIFTH FLOOR

Production: Sleeping Bags (Temporary)

Storage: Raw Materials and Finished Goods (overflow from 3rd and 4th floors)

Excess Space: Yes

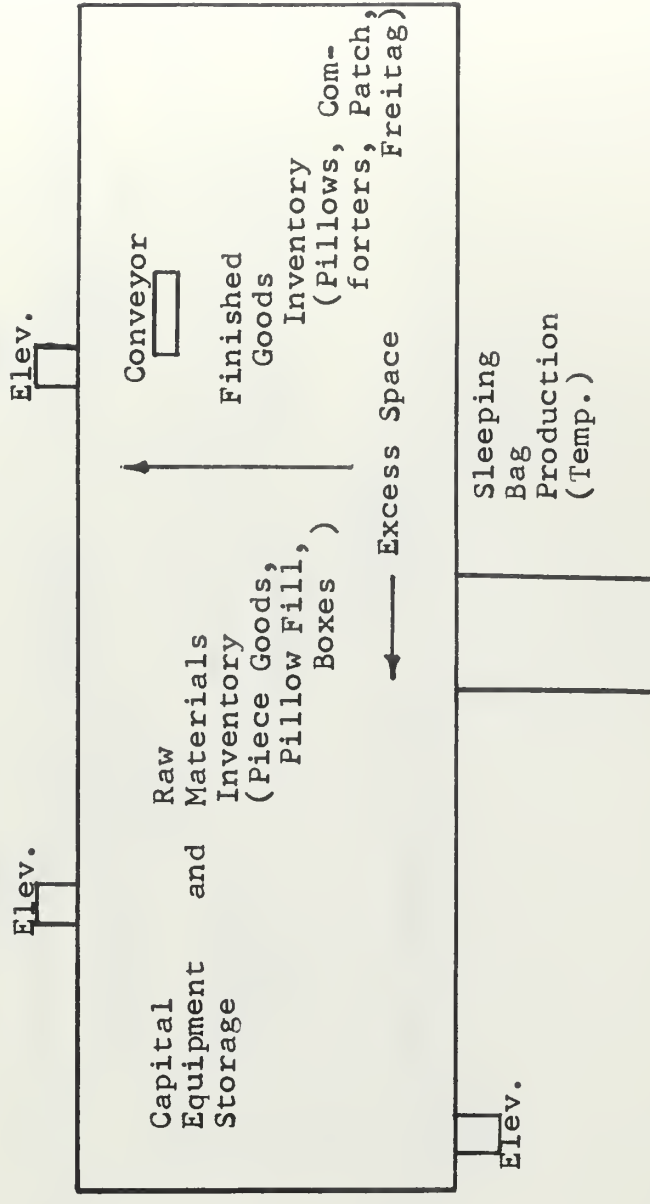


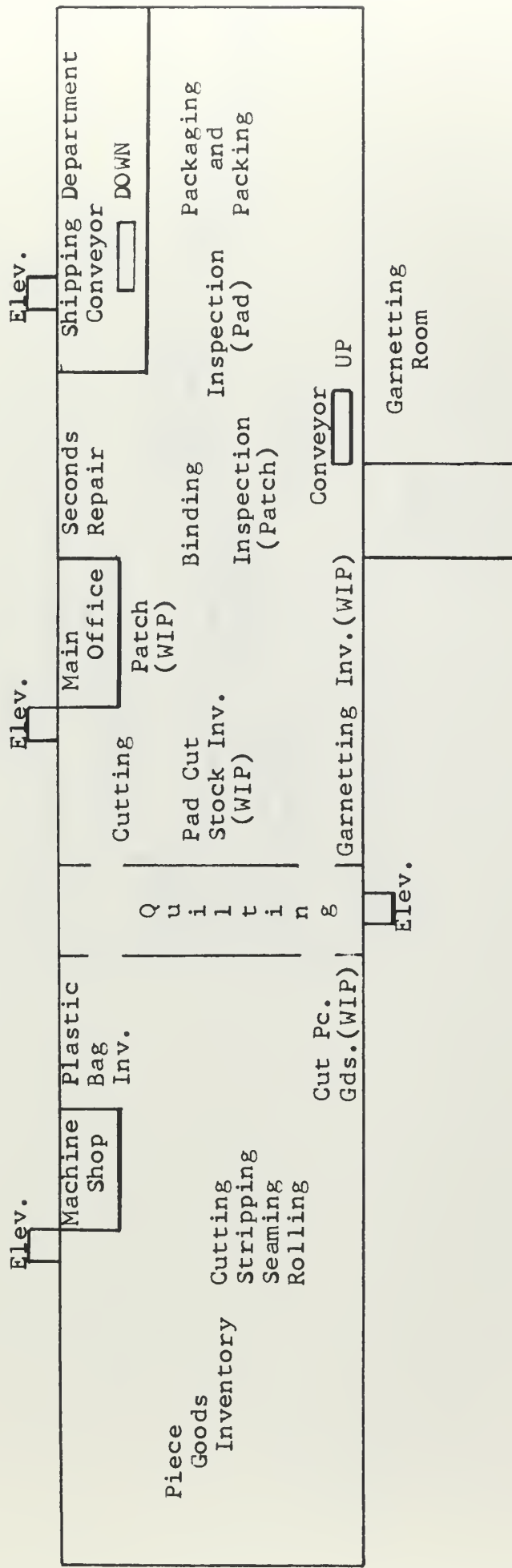
EXHIBIT II — 6

Sources of Data: Interviews with production personnel
Personal observation



PROPOSED RE-LAYOUT

3RD FLOOR



Sources of Data: Interviews with production personnel
Personal observation

PROPOSED RE-LAYOUT

4TH FLOOR

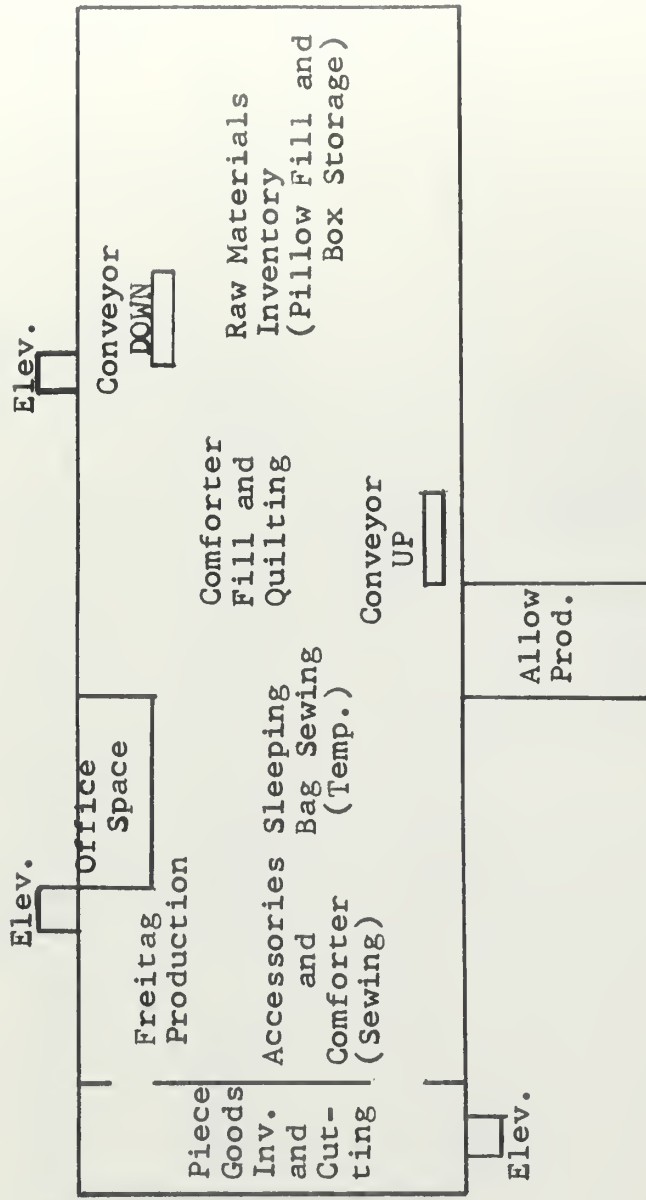


EXHIBIT II — 8

Sources of Data: Interviews with production personnel
Personal observation

PROPOSED RE-LAYOUT

5TH FLOOR

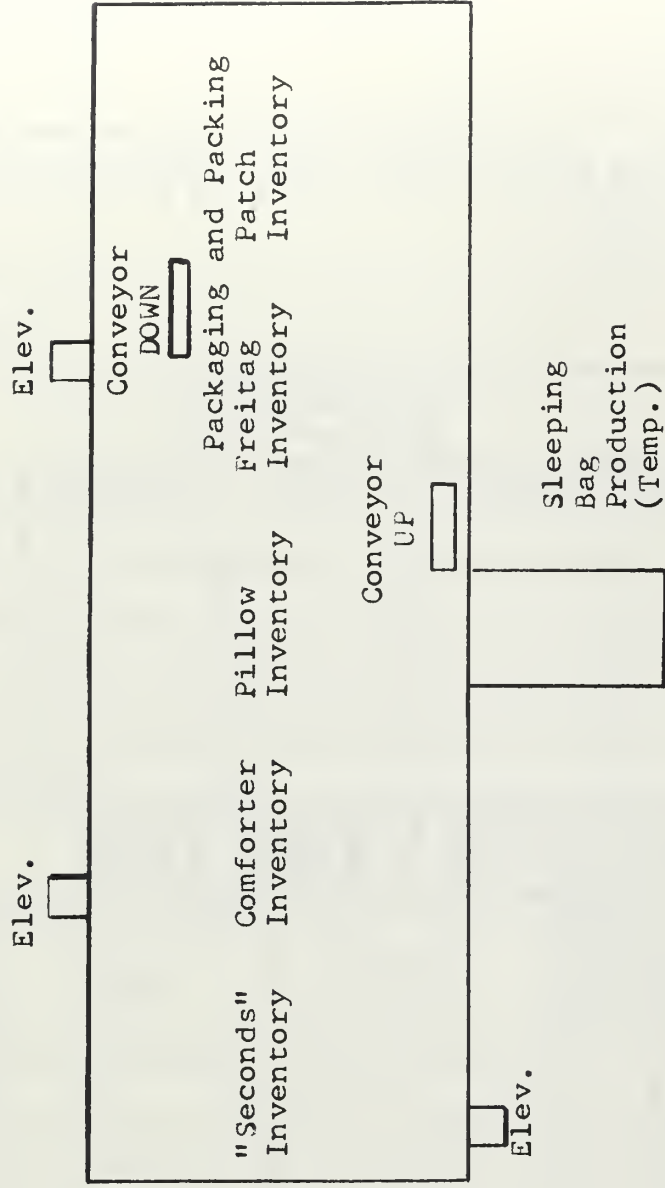


EXHIBIT II — 9

Source of Data: Interviews with production personnel
Personal observation

MACHINE MAINTENANCE RECORD

NOMENCLATURE _____

CARD NO. _____

SERIAL NO. _____

LOCATION _____

FITCAL

DATE	INITIAL	DATE	INITIAL	DATE	INITIAL

FAILURE/STOPPAGE

FAILURE		CAUSE	ACTION	RETURN TO OPERATION		TOTAL DOWN TIME	INITIAL
DATE	TIME			DATE	TIME		

PART III
PURCHASING

1. Introduction

Purchasing has as its basis the proper materials on hand in the correct amount at the appropriate time to assure continuous production of goods without undue interruption. From this standpoint, it is seen that purchasing plays a critical role in the production of saleable goods. If one could stock materials without regard to financial influences, then purchasing would be a relatively simple matter. However, materials may account for as much as 50 percent of the cost of sales and, for this reason, the price paid for raw materials is critical indeed. Holding excess inventory ties up much needed cash which could otherwise be turned over in sales with a resultant profit. Further, there are storage costs associated with inventory. This cost is in the form of insurance, deterioration, and obsolescence.

Purchasing costs can vary as much as 15 percent, depending on the skill with which the purchasing function is organized and operated. Savings in material costs lead directly to increased profits. Therefore, every opportunity to save on purchased materials costs by even a fraction of one percent should be vigorously pursued. Also, additional profit from savings in purchasing can normally be made without incurring any kind of associated increase in other expenses. If an expense increase is required, it is usually for only one person

to do analytical work.

The basic objectives of purchasing are:

1. To support company operations with an uninterrupted flow of materials and services.
2. To buy competitively and wisely.
3. To keep inventory investment and inventory losses due to deterioration, obsolescence, and theft to a minimum.
4. To develop reliable alternate sources of supply.
5. To develop good, continuing vendor relationships.
6. To achieve maximum integration with the other departments of the firm.

Where a company has failed to organize as it grows, purchasing is indiscriminately done by foremen, department heads, superintendents, maintenance men, or whoever happens to need materials and supplies at the moment. Planning and control are completely lacking. Buying is a secondary consideration. Duplication, inconsistency, and waste in materials are almost certain to follow.

2. Findings

Within the Barclay Company, there are many purchased items of inventory that contribute either directly or indirectly to the finished product. Among these, the more prominent are:

1. piece goods;
2. filler;

3. thread;
4. labels;
5. plastic bags;
6. corrugated materials;
7. general office supplies; and
8. maintenance and repair parts.

At present, the purchasing department is responsible for buying only piece goods. This function is subjected to direct control of top management.

Most all piece goods are bought through a brokerage house or the textile mill's representative. Prices fluctuate from day to day, resembling the common stock market. However, customers are able to bargain with the seller to obtain a more favorable price. The exception to this procedure is the procurement of materials made from synthetic fibers. These goods are pre-printed and sell at a fixed price from the producer.

All cotton goods are obtained in the unfinished state and are what is known as greigh goods. They then must be bleached in a separate firm and again sent to another organization to be printed according to the customer's design.

Barclay at times contracts for a year's supply of goods, to be delivered as they require. It is not uncommon to contract for as much as one million yards at a time. However, the purchaser is always on the alert for bargain prices. On occasion Barclay will even sell materials they have bargained for, if the selling price offers a lucrative profit.

In addition to the unfinished cotton (greigh goods)

and acetate (synthetic fibers), Barclay uses 15 colors of finished polished cotton, procured from Spring Mills, for use in making accessories.

Representative prices for goods are:

Greigh goods	14 cents/yard
Bleaching	3 cents/yard
Dyeing solids	5-5½ cents/yard
Printing	7 cents/yard
Acetate	25 cents/yard
Polished cotton	27 cents/yard
Dacron	75 cents/pound
Down	5 cents/pound

Piece goods are not charged to Barclay until delivery is made, which is at their option. Terms throughout the textile industry are traditionally 1/10 n 70 which is slightly less than 6 percent. Barclay always takes the full time to pay, which is a wise decision, since borrowing cash would likely cost more than the 6 percent.

At the expense of being humdrum, the following purchasing policies are iterated:

Filler, consisting of cotton, dacron, feathers, down, etc., is a separate purchasing responsibility.

Thread is a separate purchasing responsibility.

Labels are a separate purchasing responsibility.

Plastic bags are a separate purchasing responsibility.

Corrugated materials are a separate purchasing

responsibility.

General office supplies are a separate purchasing responsibility.

Sewing machine maintenance parts are a separate purchasing responsibility.

Garnetting machine maintenance parts are a separate purchasing responsibility.

Knitting machine maintenance parts are a separate purchasing responsibility.

3. Analysis

3.1 Control

At present, the purchasing responsibility is divided among many individuals. In all except piece goods buying it is a secondary function, so naturally the purchasing of materials does not receive the attention it deserves. There are few significant purchasing records with few standards of performance and value sufficiently concrete for intelligent appraisal at the management level.

3.2 Inventory Size

Piece goods inventory averages about $1\frac{1}{2}$ million yards. Of this, 10,000 yards are acetate, 30,000 yards are polished cotton with the remainder being print goods. Indications are that about 9,000 yards are processed in a normal eight hour shift. Predominately, a second shift processes 4,000 yards by an optimistic estimate. Using a basis of 13,000 processed

yards per day, which is definitely overstated, it would amount to 65,000 yards processed per week. Based on these figures, a piece goods inventory of approximately $5\frac{1}{2}$ months is kept available. A conservative estimate would place a dollar value on this inventory of approximately \$225,000.

Although formal records are not kept on fibers inventory, a cursory examination would indicate a value of approximately \$50,000 in inventory. An estimate of \$15,000 inventory of plastic bags is assumed. On the other items, such as thread, labels, boxes, and maintenance parts, is placed a value of \$25,000 for inventory.

Based on these figures a conservative estimate of the value of total inventory, not including work in process and finished goods, is \$315,000. Assuming a six percent interest rate, the cost per year for holding this inventory is approximately \$19,000. However, since cash costs the company much more than this interest rate, the cost of holding inventory is even more significant. Moreover, if this cash were available for turnover in sales, a much higher return could be realized. Further, this figure only includes the tie-up of cash and does not take into account inventory carrying costs such as insurance, deterioration, obsolescence, warehouse costs, etc.

Some published analyses of the annual costs of carrying assorted inventories reveal costs ranging, for example, (4) from 8% to 40% of the average value of the inventory. A sample

of the results arrived at by those who have investigated the costs of carrying inventory is given here for interest.⁽¹⁾

Obsolescence	10%
Interest on capital invested in inventory	6
Physical deterioration or its prevention	5
Handling and distribution	2.5
Transportation	0.5
Taxes	0.5
Insurance	0.25
Storage facilities	<u>0.25</u>
	25%

That is, to maintain an average inventory of \$100 worth of materials for one year costs \$25.

3.3 Inventory Control

Control of inventory has probably received more attention than any phase of business management. Since materials account for the major cost of production, and every company has considerable investment in inventories, it is little wonder then that keeping a tight reign on inventories is highly profitable for the business. Barclay appears to fall short in their methods for forecasting and controlling the necessary quantity of inventory. There is a definite need for some type of simple analytical tool, that can be adapted readily to data processing, for forecasting and controlling inventory.

An effective inventory policy will greatly justify the time and effort spent in its maintenance. It is in this area that the greatest savings are realized.

3.4 Acceptance Inspection

It was noted that piece goods received are often of inferior quality. When discovered, they must be returned to the supplier. Needless to say, this is not only an added expense but, more particularly, production is delayed or a substitute must be made.

4. Recommendations

4.1 Centralize Purchasing

Assembling the following two types of inventory purchasing under a centralized department, unit, or individual is recommended.

a. Production inventories — raw materials, parts and components which enter the firm's product in the production process.

b. MRO inventories — maintenance, repair, and operating supplies which are consumed in the production process but which do not become part of the product.

This is not to imply that purchasing initiates every buy. Departments, such as maintenance and administration, would still initiate requests for items; however, purchasing should screen all requisitions. By this centralized method of purchasing, planning and control of inventories is facilitated.

4.2 Apply Analytical Techniques

It is recommended that a more analytical approach to inventory control be adopted, taking into account the following factors.

First, to have a sound inventory control policy there must be some type of forecasting. The demand for each individual item should be projected into the future, taking into account historical data, short and long range trends, and seasonal patterns.

Second, and of equal importance, is the actual control of inventory levels, order quantities, and reorder points. Exhibit III — 1 is a simple model showing the characteristics of inventory. The characteristics of each item should be determined so that a sound inventory policy can be maintained.

There is no best way of forecasting that will fit each individual company's need, for each company has a unique set of problems and should adopt the method that best suits its needs. Nor is it necessary to have elaborate mathematical calculations or ostentatious analytical tools for an effective system.

What is needed is a relatively simple technique that can be easily programmed on the computer. Robert G. Brown^(2,3) has developed a simple but practical system of inventory control known as exponential smoothing. It is a simple process designed for forecasting, predicting trends, and projecting seasonal patterns. Probably, the most unique

feature of his method is its simplicity and adaptability to data processing. Barclay should investigate the possibilities of this method.

4.3 Acceptance Inspection

There is a definite need for some type of plan of inspection upon receipt of materials. Since the cost of 100% inspection would probably be prohibitive, a plan for statistical acceptance sampling should be adopted.

4.4 Staff A Purchasing Office

The above recommendations will require an enlargement of the purchasing department. However, it is felt that clerical assistance would constitute the only necessary addition.

4.5 Management Attention

At present, purchasing is directly under top management. This is a prudent policy decision and should be continued.

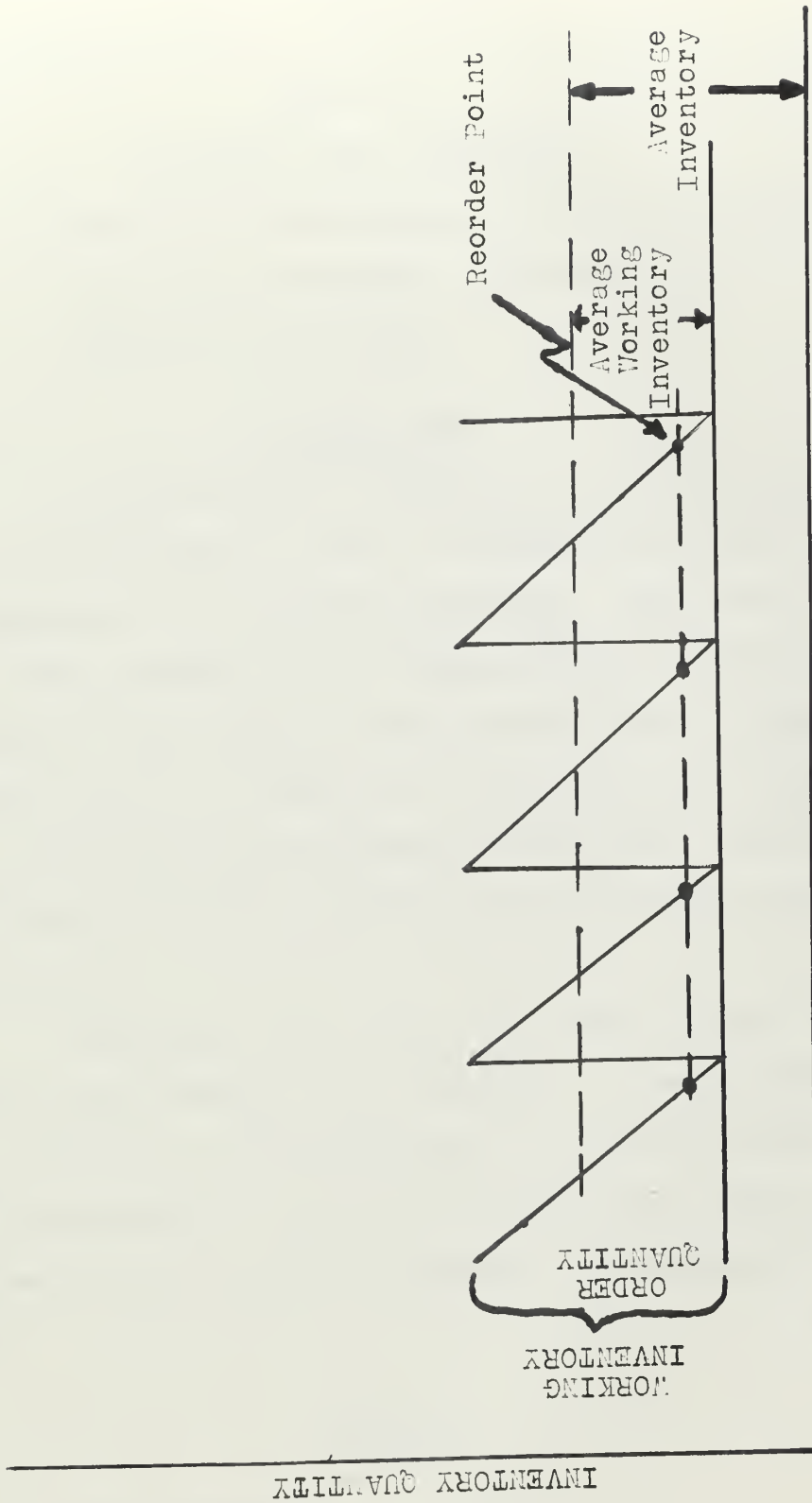


EXHIBIT III - 1

Simple academic model.

PART IV

ELECTRONIC DATA PROCESSING

(Due to the brand name of the electronic data processing equipment, the department is commonly referred to as "IBM")

1. Introduction

In any business organization, the keeping of records and the manipulation of data to indicate the results of company business is an important function. When the firm is small, manual methods are suitable and most economical. As the business firm expands, the amount of data increases considerably, and in a competitive environment more rapid computation is required for management decisions. Electronic data processing systems were developed to handle this increased flow of data.

Electronic Data Processing (EDP) is not a decision maker for the company, but a provider of useful information to the individual decision makers. Through the operations of data compilation, storage, and processing, bulky raw data is converted into useful information for management decision making.

2. Findings

2.1 Progress Achieved

A report of this nature often emphasizes what was

found to be lacking. A review of the opposite is therefore in order. EDP at Barclay has made substantial progress in the processing of financial data. It should be noted, however, that EDP activity is under the direction of the Controller. Both the Controller and the EDP manager understand the processing system, thus facilitating mutual discussion and problem solving. This coordination of effort is not found in EDP's relationships with the other managers.

Besides increasing the financial capabilities of the firm, EDP facilitates the identification of problem areas. The largest of these was inventory control. Here the discrepancies between the actual and the recorded inventories, as revealed by EDP reports, illuminated unauthorized piece goods removal. By following the lead shown by the EDP reports, the company is taking steps to stop this practice.

EDP is now earning its way in the handling of financial data for the office force. With the faster and more flexible equipment soon to be installed, increased capability will be realized. Management would be amiss if it overlooked this second opportunity of securing the equipment's use for production purposes. Only by the forceful leadership of top management and the cooperation of all managers can the desired results be obtained.

2.2 Data Delays

It was found that much of the data required by EDP

is not received in a timely manner. An example of this problem is the route the invoices take upon departure from shipping. The billing section receives them first, delaying EDP's receipt about half a day. There are other examples where even more than one person sees the data prior to EDP. There seems to be a general fear among departments that if an action department does not get the data first, it never will. Then, once the data has been generated within a department, it has a tendency to remain in the department until it has been seen by anyone possibly having a need to see it. While the actual review time may not be long, the dead time awaiting review can be excessive.

2.3 Missing Data

The EDP Department is presently suffering from inadequate data. Delay in receipt of information has already been stressed. Non-receipt of data is another block to efficient operation. This is evidenced by the large number of work-in-process orders in the EDP file that are found to have been completed during the physical inventory.

It is essential that each bit of specified input data be provided to EDP accurately, fully, and expeditiously. As this is not presently the case, it is planned that a representative from the controller's office be assigned to the production floor. It will be her responsibility to ensure collection of all data.

2.4 Inaccurate Data

Data arriving at EDP is often in error. The key punch operators now check this data for error, when their only job should be to transcribe the data to punch cards. Errors of this type cause both delays in checking and in obtaining corrections.

Another problem affecting the accuracy of output is the non-reported changes in original data. This is most common when substitutions are made in customer's orders. The invoices are not changed to reflect these substitutions, thus generating errors in the finished goods inventory records.

3. Analysis

3.1 Proper Data

The EDP Department's sole responsibility is to receive data generated by others, process it at speeds far exceeding any manual processing, and disseminate the results to others for use. It has no interest in the incoming or outgoing data other than speedy and accurate processing. EDP, in the "ideal setup", reduces time lag in reporting the firm's business. Inaccurate, late, or lost data defeats the system from the beginning. Good reports cannot be made from poor inputs, the same as high grade quilts cannot be made from poor cloth.

3.2 Expeditious Data Submission

A continuing problem affecting the entire processing

efficiency is that of forwarding the raw data to EDP in time to be of use. This can be divided into two categories: time delays in releasing the data for the source, and EDP's position in the data routing system. Indications are that the production departments need to investigate methods of insuring proper forwarding of all data. This can only be accomplished if the department heads join in a cooperative effort to make the system work, thus reducing data delays to EDP. EDP must have timely data if it is to produce timely reports.

3.3 Expeditious Processing

Having the source departments check for errors in data prior to release would also limit, to a degree, the processing delay. Since the source department is more familiar with the data, it would seem they could screen errors far more efficiently than could EDP. It would also seem more natural to make the source department responsible for the accuracy of data rather than passing this responsibility on to EDP.

4. Conclusions

4.1 Data Collection

The size and quantity of reports must be policed. Idle capacity is cheap, comparatively, if it permits the required reports to be timely and valuable. However, excessive volume of data requirements delays submission of data and reduces the value of the resulting reports.

The entire management force of the company must determine the uses it has for the electronic data processing system. It is not a one man operation. Only as a group can the desired reports be evaluated and, thus, acquire the necessary data. Each manager and his department must coordinate his desires with the others. For example, the availability report could be an advantageous tool to production control if it were accurate and readily accessible. The availability report, however, requires data from shipping for actual items shipped, from production for work in process, and from the order section for orders received. Four different sources are required and the delay of any one of these restricts the entire report.

The proposed device of using representatives from EDP to collect data on the production floor may be an expedient method of insuring data collection. However, in the long run this may lead to further aggravation of data discrepancies in that the production department may gradually shift the entire responsibility of data collection to EDP and withdraw departmental assistance from all phases of the system.

4.2 EDP Utilization

EDP reports should relieve production supervisors of the need to keep extensive records on the progress of production orders. Transition to electronic data processing for replacement of manual recording and manipulation of data for management use has been slow, if not completely absent. The

time consuming manual methods are still preferred. Given the proper inputs, the EDP Department can produce timely, accurate reports, giving management the tools to perform its task better than ever before.

4.3 Interdepartment Coordination

This again stresses the reliance on interdepartmental coordination for successful operation of an electronic data processing system. The most evident problem was that of processing customers' orders. If EDP were informed of substitutions made to fill customer orders from stock, a twofold benefit would be recognized: the increased accuracy of the availability report and the actual cost of such substitutions.

This report should be of prime importance in production planning and replace the manual method of record keeping. However, because of its inaccuracies and tardiness, the report has no managerial value to the production department. The cut off time for input data is 3:00 P.M. Friday, but the report is not available for use until late Tuesday or early Wednesday. This might not be a large disadvantage if scheduling were possible for several days in advance. However, given the company's present production scheduling conditions, reports must be exceedingly expeditious to be of any use. (In a sample of about thirty completed work tickets, twelve contained changes in size from the initial production order.)

4.4 User Training

Everyone within the firm who contributes to, uses, or is otherwise involved with EDP data has to be thoroughly familiar with the mechanics of the system. Therefore, any course of instruction should include: basic equipment and system concept, benefits to be derived from the system, and familiarization with existing responsibilities in making the system work and improving it. People have a fear of the unknown and, unless they can visualize the entire system, they will resist its full implementation out of ignorance.

The basic system orientation involves considering all areas of the plant, either as a source of raw data, as the recipient of the finished data, or both. EDP has contact with more personnel outside the department than any other. It must work closely with the sources and the recipients of data to accomplish its objective of useful and timely reports. The information must be received as soon as it is generated, if it is to be of value. The sources and EDP must study all inaccuracies and delays in data forwarding. Any one department, by delaying data, can impede a report that other departments are awaiting. Thus, by the time these reports are received, they are of little value in a fast-paced organization.

5. Recommendations

5.1 Precisely Define Report Needs

All management personnel should confer with EDP

personnel to establish desired reports. They must, also, continue as a team to review the system. As Barclay continues to grow, EDP's requirements will change.

A continual review of existing reports is of prime importance if their value is to be improved. This can be accomplished with a different arrangement of the data, different computation of the data, deletions and additions of data, improvements in accuracy, spacing between reports, and reduction of the time lag. As several of the preceding are inversely related, certain trade-offs are necessary. For example, holding a report until an error has been located and corrected would increase accuracy but if the error were small, timeliness of the report may be more valuable. The error could later be corrected by memo, or even in the next report. It is realized that the above example would only be possible where the users understood the problem and EDP did not have to defend itself by producing perfect reports.

5.2 Check Cost And Worth Of Reports

A second topic for periodic review is comparing the value of a report to management with the cost of producing the report. The cost includes not only cash expense, but effort in obtaining the data and processing the report. These can affect the production of other more valuable reports. Reports of low value may possibly be combined with other reports (in whole or in part) or eliminated entirely.

Care should be exercised to avoid duplication of data or creating new reports when the same modified data is available in those already existing. A common pitfall of using electronic data processing is the generation of reports merely because the capability exists. The cost of producing these reports is wasted if they are not read and utilized. A striking example of this was EDP's proposed dropping of a report which it felt was not being used. This proposal was rejected at the time, as various managers deemed it absolutely essential. Later, EDP dropped it without notification. This report was not missed until, after six months, they were informed by EDP that it was no longer being produced.

5.3 Data Submission

The required data submitted to EDP must be accurate, timely and reliable. The following devices, among others, should be considered:

1. Route action data directly through EDP where the time required by EDP to extract necessary information is acceptable.
2. Provide EDP with direct duplicate copies of raw data addressed to other departments for action when it cannot be routed directly to EDP first.
3. Insure that EDP promptly returns to the originator any data submitted, if so desired.
4. Set deadlines for each report and require that late reports include a notation explaining the reason late.

5. It is strongly recommended that the data be forwarded promptly with instruction for its return to the source. This would eliminate the sudden influx to EDP of data as report cut off time approaches. It would eliminate complaints of reports being inaccurate in that information concerning items shipped just prior to cut off time would, in fact, be reported rather than delayed within the department.

If there were no delay in data departure from a source, EDP should be the first to receive it. The forwarding of data should be secure from department to department.

5.4 Processing Schedule

It is recommended that EDP not only consider methods for better data submission, but also review its own processing procedure. The availability report could conceivably be ready Monday morning. If all of Friday's data were promptly forwarded to EDP at 3:00 P.M., the necessary cards could be punched by 4:30 P.M. One operator could run the report in about four hours on Saturday morning. At present, the "open order by due date" report, which uses many of the same data cards, is run first. A delay in this report would not be as critical to production as the former.

PART V
PERSONNEL

A thorough analysis of any firm must consider personnel administration although, certainly, in a manufacturing firm the prime concern is normally the areas of production, finance and marketing. In the case of the Barclay Company, a detailed study of the personnel-related practices and problems was conducted, since it appeared at the outset that a serious personnel retention problem existed with undefined but certainly potent effects on production and profits.

Personnel practices and problems are treated in three parts as follows: Employment, Industrial Relations, and Personnel Administration.

1. Employment

At the outset, management stated that the company had a serious turnover problem. The rate of personnel turnover from management estimates ranged from 10% to 25%, but the related cost to the company in terms of dollars lost through training and slowed production was unknown. Therefore, an attempt was made to quantify the turnover problem and its related costs during 1965. Exhibits V — 1 through V — 5 reflect the results. Throughout this section all employment figures represent factory or production employees, i.e., non-clerical workers. Total employment figures include such personnel at the main plant, as well as the Mohawk (pillow) plant

and the Hoosick Falls plant. The Pad & Patch Department was chosen for a more detailed analysis in some respects, since it represented the largest department. As no formal personnel files are kept, the data on employment levels for the Exhibits was accumulated from the 1965 record maintained for each employee by the payroll section. A sample form of this record appears as Exhibit V — 6. Hours worked each day are written in the appropriate block by the payroll clerks as obtained from the employees' time cards. Since the breakdown on the Exhibits is by weeks, an employee had to work at least 3 days in the given week to be counted. Exhibit V — 4 is an attempt to show the extent of transient employment and is, likewise, based on the calendar sheets. If an employee worked during several periods of the year, the total days worked was accumulated for charting purposes.

1.1 Findings

1. Turnover. Exhibit V — 1 shows the fluctuation in employment from week to week by department, as well as the total number of employees for each week. Since the points plotted represent numbers of workers and not numbers of different workers, there is some fluctuation not shown. For example, if two persons quit or were laid off and two others were hired within the same week, no fluctuation would appear on the graph since net change would be zero. Thus, the variation in employment is somewhat greater than shown here. Employment for work on government contracts was plotted last,

since it fluctuates widely and independently.

Exhibit V — 2 suggests the level of steady employment, the degree of variation per week, and the production per week as measured by total sales dollars shipped. No other measure of output was available; however, the normal run for an order is three to five days with shipment direct from the production line, so that curve C represents a close approximation of weekly output.

Exhibit V — 3 is an analysis of employment in the Pad & Patch Department with an added graph of the dollars of make-up pay per week for the department. Make-up pay is money paid to the employees on piece rates to get their pay up to the guaranteed federal minimum wage of \$1.25 per hour (or up to higher level if the wage agreement for that job is higher), if the worker did not produce enough to meet the base rate.

Exhibit V — 4 is a tabular presentation of the turnover problem. At a glance, the distribution of days worked by employees seems to be fairly constant from department to department. The mean of two of these distributions is given in A. Since "turnover rate" is not defined, two possible meanings are given in B and C. In B, the base used was the average employment level, as estimated from the graphs of employment, while in C, the base was the total number of people hired during the entire year.

Exhibit V — 5 was the result of a study of a random sample of newly hired employees in the Pad & Patch Department.

The method of choosing the sample was to randomly pick a two week period from Exhibit V — 3 during which the department had added employees; weeks 37 and 38 were chosen. Then a search of the calendar sheets of all employees yielded the names of the seven employees hired during this period, while payroll records and telephone conversations with each rounded out the sources of information

It was not possible to break down the turnover by pay rate or to distinguish between turnover rates of hourly workers and piece workers, due to the magnitude of the record search which it would have entailed. However, a breakdown by sex showed that 61% of the transient employees were male and 39% female.

A telephone survey was made of former employees in order to determine the reasons why they were no longer with the company. Most of the male employees listed low pay as their primary reason for leaving; others were laid off and either not called back or obtained better jobs in the interim. The majority of the former female employees had been laid off and never called back; most seemed to be willing to return but had not been contacted. These included people who had been laid off early last year and could have been available during periods when production was up. Several mentioned dissatisfaction with their immediate supervisors and indicated they were highly pressured to work overtime when to do so was quite impossible for family reasons.

Many employees who quit do so without warning, particularly those that haven't been on the payroll but a short time. As shown on Exhibit V — 4, there were 166 employees who worked less than thirty days last year, of which 51 worked less than one week. Production foremen indicated that this causes serious bottlenecks at times due to untended machines or equipment.

Finally, another aspect of the turnover problem is that it boosts the amount of unemployment insurance the company must pay the state. At the present time, this rate is 4.2% of all wages up to \$3000 per year per employee. Details on this and its implications will be discussed in the Analysis section.

2. Wages. Company policy is to place every worker on an incentive pay system if at all possible. Thus, approximately 50% of the employees are on piece rates and 50% on a flat hourly wage. Piece rate make-up pay, shown on Exhibit V — 3, is actually broken down into two parts by the payroll clerks — LL, which is "learners loss" paid to an employee in training for the first six weeks if they do not produce enough to make \$1.25 an hour, and GEX, "guaranteed extra", which is paid an employee who has been on the job more than six weeks but does not make his base rate. In reality there is no difference between the two, although there may have been a difference when the system was set up or an intention that there be a difference.

Starting wages are low, usually \$1.25 - \$1.35 for female and \$1.40 - \$1.50 for male. Since the company does not have any semblance of a job evaluation or merit system, raises tend to be very few and occur under two conditions. Either a new union contract calls for wage increases or the foreman of a worker feels the employee merits a raise, due to proficiency or fear of losing him to a different company, and submits a recommendation to top management. Wages in general in the textile industry in the area are quite low; however, conversations with many older workers and lower management indicate that the Barclay Company's wage scale is one of the lowest in the area. No survey of prevailing wages at other textile firms was conducted.

3. Hours. The company works on the standard forty hour week, Monday through Friday, with an unpaid half hour for lunch and two paid fifteen minute breaks. Employees must punch in and out on time clocks. Overtime work is very common, including some Saturday work. The company pays time and a half for all work over eight hours a day and/or forty hours a week. A sixty hour work week is not uncommon for many workers during peak seasons.

4. Working conditions. Working conditions are not good. Lighting is very poor in many areas. Rest rooms and smoke rooms are small and shabby. The company does not provide an area for employees to consume their lunches.

1.2 Analysis

A quick study of Exhibits V — 1 through V — 5 will reveal the magnitude of the employment problem and many of its implications. The level of steady employment is very low, as indicated by A on Exhibits V — 2 and V — 3. It is important to note that although production was fairly constant through several periods of the year, the fluctuation in employment was as noticeable in slower periods as it was in peak periods, which tends to indicate that reasons other than seasonal output cause the high turnover rate. But, logically, the requirement to lay off workers does coincide with lower product demand. It is particularly significant to note that the mean number of days worked by an employee who was transient, i.e., worked less than eleven months, was only 96 days (Exhibit V — 4, A). This was computed statistically from the distribution of workers who worked 0-30 days through those working 300-330 days.

It can be shown that this figure is valid by approaching the problem from a different angle. By inspection of Exhibit V — 2 B, it can be determined that the average number of employees, or jobs to be filled, for the year existed about vacation time. This was found to be about 220. Of these 220 jobs, 112 were filled by full year employees, of which 108 must have been filled by transients. There were 458 transients (570-112, Exhibit V — 4) who rotated through these 108 positions or about 4 per position for the year, which tends to verify the figure of 3 months employment by a transient.

The same analysis will verify the Pad & Patch mean of 93 days.

What are the implications of the cost to the company of this turnover? There are many, some apparent others quite subtle. Here are some immediate implications:

1. Training costs. First, there are the direct training costs. Although very real, in part they are difficult to quantify. Some idea of the magnitude can be seen by referring to Exhibit V — 3, an analysis of the Pad & Patch Department. Make-up pay goes only to employees on piece rates and is made up as mentioned under the findings. From curve B it can be estimated that the average employment level in Pad & Patch was about 70 employees. Of these, 40 were permanent, or experienced, leaving 30 as transients, on the average. Of these 30, about 50% would have been on piece rates, or 15 workers. Now, referring to C, it can be estimated that the average make-up pay per week was \$350, or about \$23 to each of these 15 employees each week, paid by the company for non-productive work. Besides pointing up the inexperience of the transients, this may be an indication that the piece rates are set at an unrealistic figure.

That the average make-up pay figure of \$23 per transient piece worker per week is somewhere in the ball park can be verified by referring to Exhibit V — 5 and noting the make-up pay paid to the two employees who started on piece rates. Note also that none of the seven employees stayed a full two months. It is also significant that none of these

employees have worked since, despite the company's running at near-full capacity since December. Finally, it must be pointed out that overtime work for employees receiving make-up pay often occurs, which means that the company pays time and a half for lost production in these instances. Total make-up pay for Pad & Patch alone amounted to \$18,151 in 1965.

2. Unemployment insurance. The state has set a rate of 4.2% for the Barclay Company for unemployment insurance. In New York State, the entire cost of unemployment insurance must be borne by the employer. This means that for each employee the company must pay out of its pocket 4.2% of every wage and salary dollar earned, up to the point that the employee has earned \$3000 for the year. As is obvious, with the turnover rate and low pay a very low percentage of the workers ever reach that figure. A check with the New York State Department of Labor revealed that 4.2% was one of the highest in the state, for any firm. It is enlightening to consider the way the State arrives at this figure. The normal rate is 2.7%; a new company is required to pay 3.7% for the first year, since there are no previous years to use as a guide. It is not uncommon for an established company to pay as low a rate as 1.4% to 2.0%. In simple terms, the final rate is determined by referring to the previous years performance, that is, by comparing the dollars paid in by the company to dollars paid out to unemployed persons who had been let go by that company. The Barclay Company had a

negative balance for 1965; thus, the 1965 rate was set at 4.2%.

This is certainly understandable from two aspects: first — the extremely high turnover rate and lack of a recall system for laid off workers, as will be discussed under Personnel Administration; second — the company method of handling claims for unemployment. When a person files a claim for unemployment pay, the State forwards the form to the employee's former employer for completion and verification. Verification by the Barclay Company simply means calling the employee's foreman or supervisor to determine the reason the employee was let go. It was found that very few claims are disallowed by Barclay, and that on occasion even people who quit or were fired had been approved for unemployment pay. Thus, because of inattention to this expense in 1965, the company is presently being penalized at least 1.5% (4.2% - 2.7%) of all labor costs, which could make a sizeable contribution to profits if employment were stabilized.

3. Lowered production. Some idea of the actual cost involved in the turnover problem can be gained from points 1 and 2. There is yet another area which suffers a hidden cost from the problem but which can only be pointed out — that is, the reduced work flow resulting from the endless training of new employees. This creates bottlenecks and a general slowing down of production runs. The worse aspect comes from the frequent work stoppages caused by an employee not showing up for work or walking off the job unexpectedly.

4. Administrative costs. Finally, there are the administrative costs associated with payroll and bookkeeping caused by the large number of transient employees. Control of time cards, processing of unemployment claims, updating the payroll, administration of income tax, social security and union dues withholdings, etc., are all multiplied approximately 3 times what they would be with a stable employment level.

1.3 Conclusions

That the employment problem is real and of great magnitude should now be apparent. From the previous paragraphs, several conclusions can be reached as to the causes.

1. Low pay. Most workers can expect to make only \$50 to \$60 per 40 hour week before taxes and withholdings.

2. Seasonal and other fluctuations in demand. Since the company produces to individual order, offers an extremely wide line of each type of product, and ships direct from the floor, there is never a chance to level production over a long period and, thus, it is necessary to lay off idle workers frequently.

3. Hiring and recall system. This will be discussed in the section on general Personnel Administration.

4. Unemployment compensation. Former Barclay employees can draw unemployment pay with inadequate justification.

5. Working conditions. Poor working conditions and little management interest in bettering them contribute to poor retention.

1.4 Recommendations

Barclay Company management must first acknowledge the vital need for action to reduce the employment problem. Despite a wide general knowledge among both employees and management of the serious cost involved, no evidence exists that any person is actively working on a solution to the turnover problem. Therefore, of prime importance is the hiring of a personnel manager. The need for this is apparent here and will be expanded upon under the Personnel Administration section.

1. Immediate Steps. A start in the right direction, while a personnel manager is sought, might be the following:

1.1 Exhaust the possibilities of recalling a former employee before hiring a new one, even to the extent of reporting to the State Department of Labor that the employee had been recalled but would not work, if this is the case. This should ensure a return of a greater percentage of the former experienced workers. Also, this will slow the drainage of unemployment dollars out of the Barclay account and hopefully reduce the insurance rate for next year.

1.2 Scrupulously screen new employees. This could include a check with their former employer to determine their actual experience, reliability, and reception to training.

1.3 Insure that all claims for unemployment pay meet the requirements of the existing regulations. Abuse of the system is unfair to the owners of Barclay, other companies,

the diligent worker, and the general public.

1.4 Do not raise wages immediately. This should be a long range step.

2. Long range. Steps to stabilize employment and reduce the associated costs might be:

2.1 Develop a job rating and merit system on which to base pay increases. This should be one of the first assignments of the personnel manager, and should entail a detailed study of existing jobs as well as plans for expansion. This inquiry has generated a suspicion that many employees are on piece rates in jobs not really suited to an incentive pay scale and/or are not actually motivated by the present system. Further investigation of this matter is recommended. Immediate pay raises might reduce the turnover rate; however, the possibility exists that such a step might further aggravate existing inequities in the wage system as it now stands. Many job evaluation, classification and merit systems have been developed which could be adapted to Barclay's needs. For example, the Cluett-Peabody Company operates under such a system and might be a starting point for a search, or another could be by reference to the many textbooks dealing with the subject. This effort should be a joint effort of the personnel manager and the industrial engineer, and should involve the union steward as well.

2.2 Improve working conditions. Although the company does not own its premises, there are many small improvements

which could be made without owners' approval, such as a campaign to improve the appearance of the rest rooms and smoke rooms, or the establishment of a lunch area with picnic tables on each floor. Pressure should be brought to bear on the building owners for better lighting and decent rest rooms.

2.3 Reduce the variety of products offered and attempt to manufacture to inventory. Although this recommendation is properly the subject of other sections of this report, the net effect on the turnover problem would be to stabilize the demand for labor to a great degree, thus reducing the requirement for frequent lay-offs and subsequent loss of Barclay-trained employees to other jobs.

2. Industrial Relations

The Barclay Company is fortunate in having very amicable industrial relations with the union representing its employees, Local 2629 of the United Textile Workers of America, AFL. The current president of the local, which represents approximately 350 textile workers, is a twenty year Barclay employee. He acts as the union steward for Barclay workers.

2.1 Findings

1. Bargaining. From verbal reports, bargaining sessions are usually very peaceful, often more a formality than an actual confrontation on issues. The company is currently under a three year union shop contract with a clause

for yearly wage negotiations, which are in process as of this writing. Under the existing contract, an employee must join the union within thirty days after being hired; they are guaranteed six and a half paid holidays, one week paid vacation after one year, two after five years and three after fifteen; a paid fifteen minute break at 10 A.M. and 2 P.M. daily; time and a half for all work over 8 hours per day or 40 hours per week, with double time for Sunday work; layoff must be by seniority, with a clause covering certain company prerogatives for layoff by ability; recall must be by seniority. In actual practice, the layoff and rehiring procedures of the company are not consistent enough to determine the degree of compliance.

2. Grievance handling. As grievances arise, they are dealt with immediately by the union steward. This usually is done verbally and settled at the lowest level possible, normally at the foreman level by compromise. On occasion a grievance is taken to the plant superintendent (Mr. Beddow) and, if necessary, to top management. This seldom occurs. It is also very seldom that a grievance is reduced to writing.

3. Fringe benefits. The employees receive no actual fringe benefits. Disability insurance is carried by the company, but this is a compulsory requirement of the State. At Christmas time company policy is normally to give each employee a turkey, while some few receive a small bonus. Employees are not allowed to purchase company products direct,

not even in the form of seconds, left over stock or excess piece goods. A former practice of occasional company parties, including an all-hands Christmas party, has been discontinued in recent years.

2.2 Analysis

Many of the lax practices in the area of personnel administration seem to be a result of management indifference and weakness of the employees' union. However, this seems to be typical of textile work in the area, since many of the jobs are low skill and pay is generally low, particularly day work rates. The degree of harmony between employees and management can be attributed in part to these reasons, but some of the credit must go to top management and the union representatives, for each seems to be reasonably satisfied with the status quo and seems to respect the position and loyalties of the other.

In view of the turnover rate, it would seem to be beneficial to the company to attempt to extend the period an employee can work before he must join the union, for many jobs require more than a thirty day trial period. Once an employee becomes a member of the union, the problem of layoff or re-assignment becomes more complicated. This is a matter for bargaining at contract renewal time.

2.3 Conclusions

Barclay is fortunate that its employment ills are

not worsened by a strong and demanding local. Steps taken now to cure the ills might prevent less amicable labor relations in the future, for few if any unions are growing weaker with the passing of time.

2.4 Recommendations

A personnel manager could carry, as one of his continuing duties, the responsibility for industrial relations. The thorough revision of present personnel practices should consider the views and recommendations of key employees, particularly the union steward. Recommendations listed elsewhere in this chapter should strengthen the area of industrial relations, particularly the establishment of a job evaluation and merit system. Means of developing company loyalty among the employees might include biannual sales of seconds and obsolete piece goods to employees, a company picnic during the summer at which rewards for faithful service and beneficial suggestions might be given. In short, some attention to the employees' non-monetary needs might be small in price but significant in stabilizing employment.

It is understood that present plans of management call for seeking an extension of the grace period before compulsory union membership. This seems advisable.

3. Personnel Administration

At the present time, the Barclay Company has not assigned the personnel administration function to any one



person or group of persons. The closest approximation of personnel files that exists is maintained in payroll for the use of the payroll clerks, and the extent of this record keeping is at their discretion. Since all of management, including the foremen, are involved with personnel matters, the present practice is for each to handle his own problems. The results of this policy are already apparent at this point and will be emphasized further in this section.

3.1 Findings

1. Recruiting. The hiring of employees for production consists of a very simple procedure. Unsolicited job applicants arrive at the company almost daily. These applicants are given an application for employment form such as appears as Exhibit V — 7, which they must complete. These forms are reviewed by Mr. Jack E. Buchman. After interviewing those applicants who seem desirable, he makes a notation on the form as to the desirability of hiring them, then files the form for possible future reference.

When employees are needed, the procedure is very informal and may follow any one or more of the following policies.

1.1 The foreman expresses a need for a worker and proceeds to notify recently laid off employees of a pick up in production.

1.2 The union steward is contacted and asked if he

knows of any textile workers in need of employment.

1.3 A request is made for the employment of job applicants "off the street", that is, from those who have recently completed an application form. The request may be made to anyone of several members of intermediate management.

1.4 A call is placed to the New York Employment Agency advising them that employees are needed. This is usually done after exhausting other sources. The company does not advertise in the classified section of the newspapers for non-clerical employees.

Decisions to hire may rest with any one of several individuals and may be determined by any one of several criteria, depending upon the need for employees, the number needed, and the skill required. Again, no set pattern is followed but rather an informal word-of-mouth procedure is pursued.

2. Training. Training takes place continually, as could be expected from the high turnover rate. No set training procedure is followed. Actual job assignment and training supervision rests mostly with the foremen. Some cross training between similar jobs and, at times, production floors is carried on, but as a rule the opinion seems to be that this creates more problems than it solves since workloads fluctuate rapidly and it is easier to simply pull in a new worker from outside.

3. Personnel records. As already mentioned, no

actual personnel files are kept as such. Most of the employee information is kept in the heads of the foremen and supervisors. Job applications are retained by Mr. Jack E. Buchman, who is actually more directly concerned with the Pad & Patch Department. The payroll clerks keep a calendar sheet on each employee and have these on file dating back through January, 1965. They also keep a card file for active employees and a separate file for inactive or former employees, which dates back about five years. On these cards are kept the employee's clock number, name, address, phone number, social security number, date of payment of union initiation fee, and date of being hired. By cross referencing the clock number, it is often possible to determine the department and hopefully the type of job the employee is engaged in. IBM records listing each employee's gross earnings for each week, with a breakdown by source (e.g., make-up, overtime, piece work, etc.), and a classification by departments is also available for the past several years. All of the numerical data which appears in this chapter was obtained from the payroll clerks' records. Again, these records are kept only for payroll purposes.

3.2 Analysis

Much of the personnel employment problem seems to be due to the failure of the company to properly administer the personnel function. Present recruiting procedures are probably the largest contributor in this regard, for recruiting should form the groundwork for a stable work force. A

telephone survey of employees now in the inactive file showed that many have been laid off in the past but never recalled, even though they would have been willing to return. Discussion with several members of lower management verified that this was quite possible, since the task of recall of workers falls upon people who have many other duties and responsibilities. Sufficient records are already in existence that could be duplicated or taken over by a personnel manager in setting up an adequate system of recruiting and recall.

Training costs were mentioned at length in the section on employment. These costs would largely disappear if the work force were to become more stabilized. The establishment of a training program to cut these costs should be a joint effort of a personnel manager interested in efficient personnel practices and of a production foreman interested in a smooth flow of work through his equipment.

3.3 Conclusions

It is imperative that the Barclay Company hire a competent personnel manager. The extent to which personnel related problems detract from profits and contribute to instability and confusion is immense when considering the size of the company.

3.4 Recommendations

Hire a personnel manager, preferably a younger man with some formal training and experience in the textile

industry. Some of the critical areas which should be the subject of his immediate attention might be:

1. Personnel records. Set up a personnel file, including as a minimum each employee's application form and some semblance of a training record on which to indicate the skill level, as determined by his foreman.
2. Recall. Immediately set up a procedure for recalling laid off workers when needed, and new workers who are deemed desirable employees.
3. Selective hiring. Personally screen all new job applicants.
4. Job evaluation. Engage the aid of the company's industrial engineer and the confidence of the union steward, and set up a suitable job evaluation and pay rate system first, followed by a merit system for administering promotions and pay raises.
5. Motivation. Study other textile companies and recommend economical ways Barclay might improve morale and company loyalty of its employees in order to supplement other means of enticing workers to stay with the company.

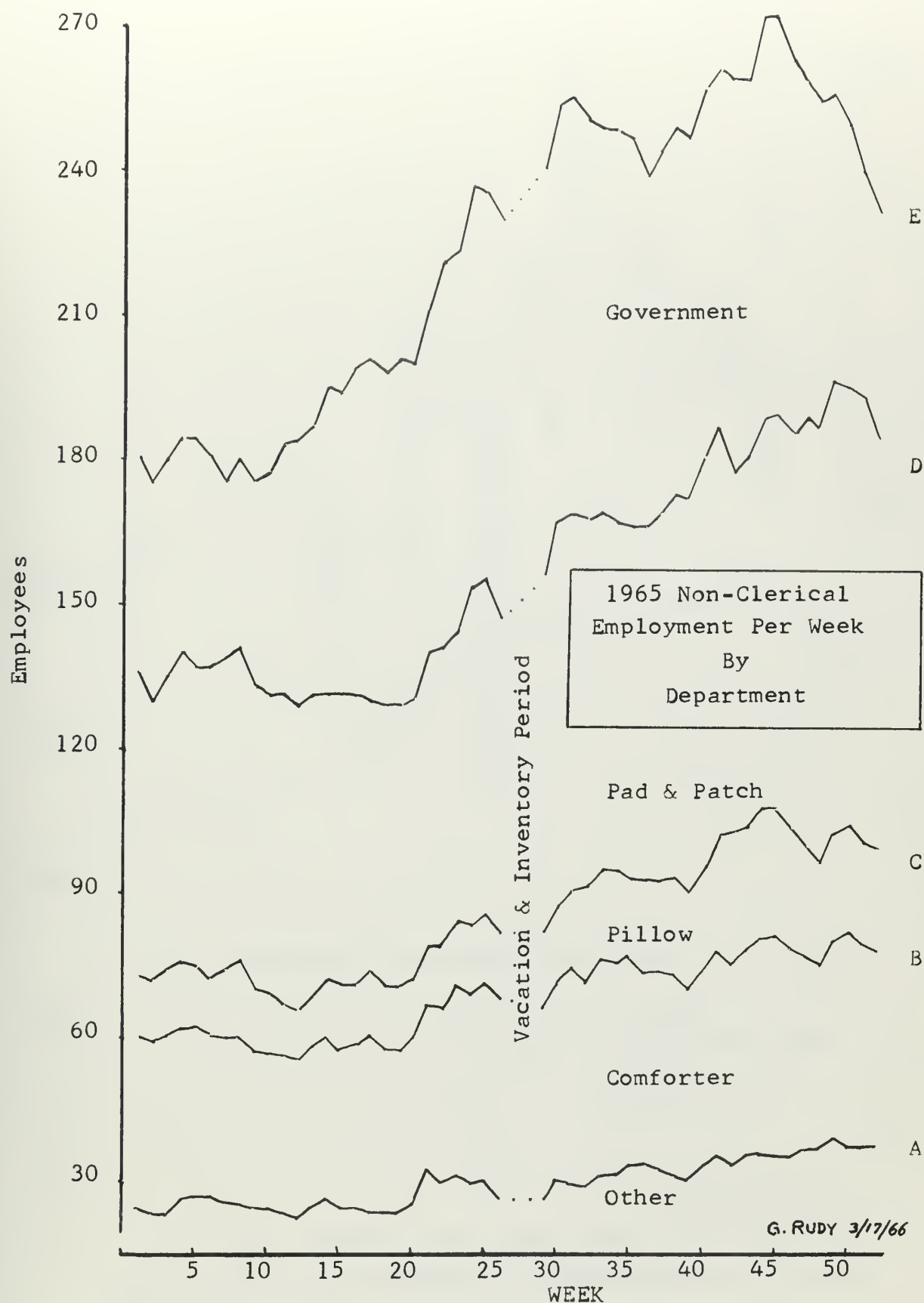


EXHIBIT V — 1

Data Source: Payroll Records

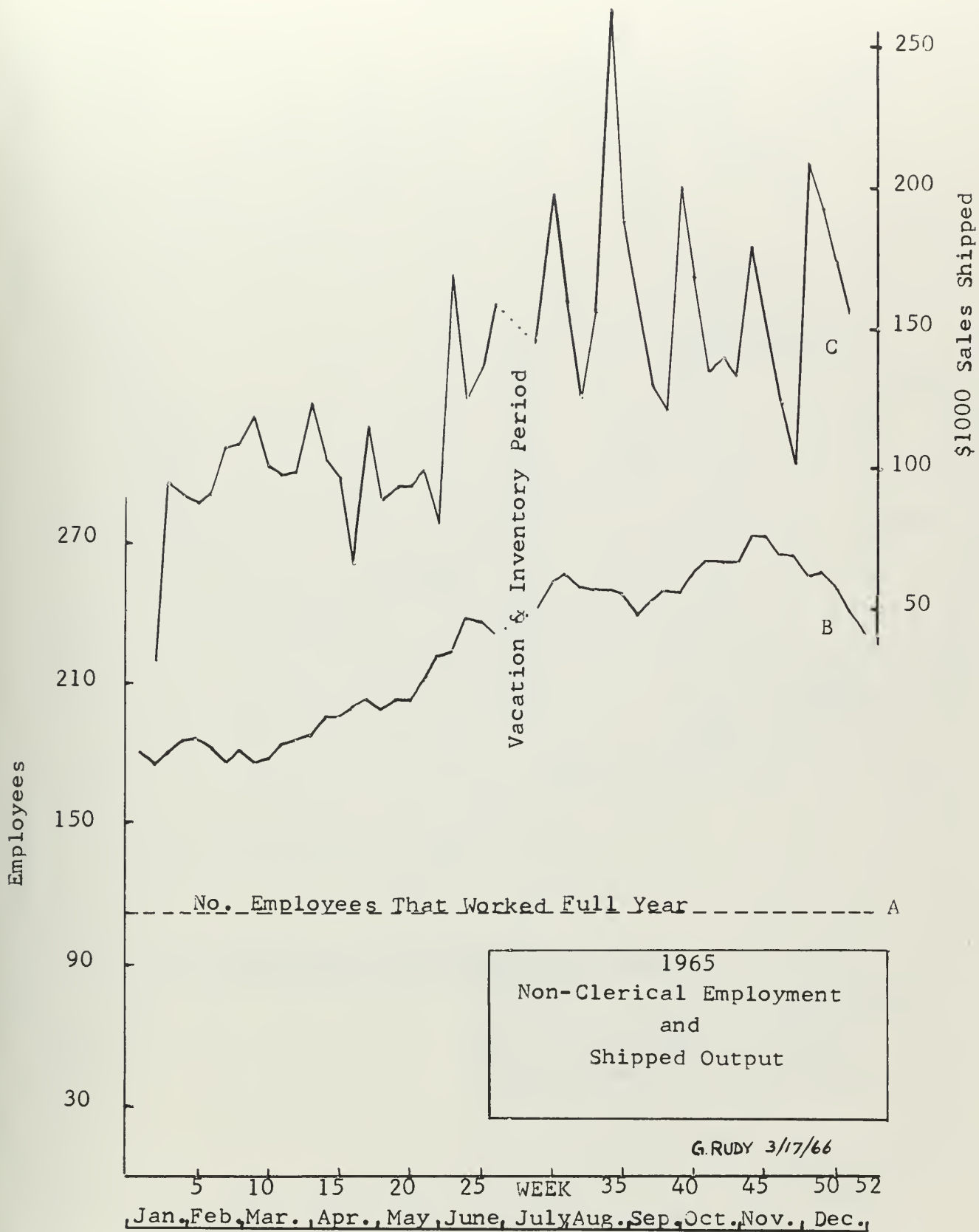


EXHIBIT V — 2

Data Source: Payroll Records

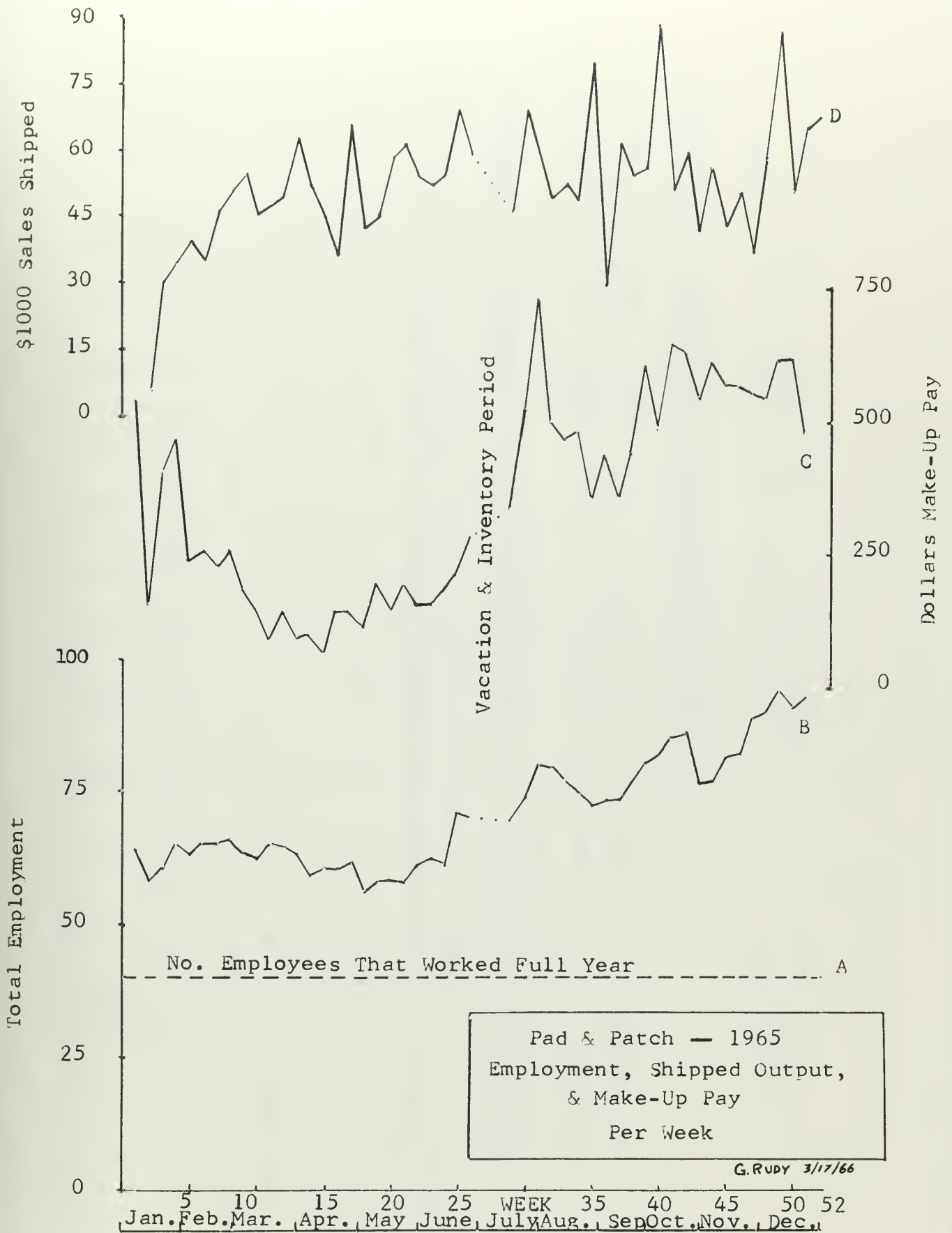


EXHIBIT V — 3

Data Source: Payroll Records

	1 Week or Less	0-30 Days	30-60 Days	60-90 Days	90-120 Days	120-150 Days	150-180 Days	180-210 Days	210-240 Days	240-270 Days	270-300 Days	300-330 Days	330-365 Days	Total Non- Clerical Employ- ees
Government	19	43	20	11	17	9	8	6	14	9	8	8	20	173
Pad & Patch	12	48	27	14	12	10	5	2	8	2	4	9	40	181
Comforter	5	20	5	5	2	1	2	2	1	0	6	2	26	72
Pillow	9	30	8	5	3	3	0	2	1	0	1	1	10	64
All Other	6	25	9	11	4	4	3	2	2	2	2	0	16	80
Totals	51	166	69	46	38	27	18	14	26	13	21	20	112	570

A. Mean Number of Days Worked
By Employees That Were on
Payroll Less Than 330 Days:

All Depts. - 96 Days
Pad & Patch - 93 Days

B. Avg. Employment Level: % Permanent: % Transient:
(Est. from Exhibits
V - 2 and V - 3)

All Depts. - 220 112/220 = 51% 49%
Pad & Patch - 70 40/70 = 57% 43%

C. Total Employees Hired: % Permanent: % Transient:

Non-Clerical
Turn-Over Data
1965

All Non-Clerical - 570 112/570 = 20% 80%
Pad & Patch - 181 40/181 = 22% 78%

Employee	Date Hired	Start Pay	Make-up Pay, Week							Tot.	Avg. Pay Chk.	Reasons for Leaving
			37	38	39	40	41	42	43	44		
A-Female	9/14	Day Wk. \$1.25	-	-	-	-	-	-	Lay Off	-	--	Laid off, returned Dec. 3. Laid off Feb., still off.
B-Female	9/15	Day Wk. \$1.25	-	-	-	-	-	-	Pce Wk. \$5	Lay Off	5 \$50	Laid off, not called back. Would have returned.
C-Male	9/16	Day Wk. \$1.50	-	-	-	-	-	-	-	-	--	Quit for better job 12/17. Better conditions & pay.
D-Female	9/16	Day Wk. \$1.25	-	-	-	-	-	-	Pce Wk. \$5	Lay Off	5 \$50	Laid off, not called back. Disliked foreman.
E-Male	9/22	Piece Work	-	\$22	\$42	\$27	\$42	Day Wk.	-	-	\$133	Laid off permanently. Undesirable.
F-Female	9/22	Day Wk. \$1.25	-	-	-	-	-	-	Quit	-	--	Quit-sick. Did not like pressure to work overtime.
G-Female	9/22	Piece Work	-	\$32	\$63	0	\$12	0	Lay Off	-	\$107	Laid off, not called back. Wouldn't have returned.

Random Survey

Pad & Patch Employees Hired

37th & 38th Weeks

1965

EXHIBIT V -- 5

EMPLOYEE CLOCK NO.

NAME

DATE EMPLOYED

ADDRESS

S.S. NO.

PHONE:

1965Vacation Control— **Calendar** —Sick Leave Control

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					①	2		1	2	3	4	5	6		1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28							28	29	30	31			
31																				
APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3							1			1	2	3	4	5
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30			
							③①	31												
JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7				1	2	3	4
④	5	6	7	8	9	10	8	9	10	11	12	13	14	5	⑥	7	8	9	10	11
11	12	13	14	15	16	17	15	16	17	18	19	20	21	12	13	14	15	16	17	18
18	19	20	21	22	23	24	22	23	24	25	26	27	28	19	20	21	22	23	24	25
25	26	27	28	29	30	31	29	30	31					26	27	28	29	30		
OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6				1	2	3	4
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18
17	18	19	20	21	22	23	21	22	23	24	②⑤	26	27	19	20	21	22	23	24	②⑤
24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31	
31																				

☐ ☐ VACATION ☐ SICK LEAVE ☐ PAID HOLIDAYS ☐ OTHER

AMERICAN PRESS

COLUMBIA, MISSOURI

Name

Department

Personal DataDate of birth Date employed
(month) (day) (year)Age when employed
(years) (months)Marital status: ☐ Married ☐ Divorced
☐ Single ☐ Widowed

Dependents Claimed

Record of Vacation and Sick Leave										
Month & Year	Vacation			Sick Leave						Attendance Record
	Days Earned	Days Taken	Balance	Days Earned		Days Taken		Balance		Days Absent
				Days	Hrs.	Days	Hrs.	Days	Hrs.	
Bal. Brought Fwd.	***	***								
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										
Totals:										

Comments

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This application must be in your own handwriting.

To receive proper consideration, all questions on both sides of this form must be answered.

Application for Employment

Date _____

FOR OFFICE USE ONLY

Application Filed.....

Application Accepted.....

Clock No.....

SOCIAL
SECURITY
A/C No. _____

Name in Full _____
(PLEASE PRINT NAME ONLY)

Present Address _____ Phone { Own } { Nabor } _____

City _____ State _____

How long have you lived in this City? _____ in this State _____ Are you a citizen of United States? _____

Last previous address _____

Date of Birth _____ Height _____ Weight _____ Sex _____
Month Day Year

Married ☐ Single ☐ Divorced ☐ Separated ☐ Widowed ☐ _____

How Many Persons do you Support? Wife _____ Children _____ Others _____

Have you any "sideline" business interests? _____ Explain _____

Do you own your home? _____ Do you own other Real Estate? _____ Do you own Automobile? _____

Kind of work desired _____ Wages Expected _____ Per Hour

Previously employed here? _____ From _____ to _____ Dept. _____

Have You Any Relatives or Friends in Our Employ? { Name _____ Relationship _____
Name _____ Relationship _____

In Case of Emergency notify _____ Phone _____

Address _____ City _____ State _____

EDUCATION	Name and Location of School	No. of Years Attended	Course of Study		Did You Graduate?	Date of Leaving	
			General	Special		Mo.	Yr.
Grammar School							
High School							
College or University							
Night School							
Trade, Business or Correspondence School							

What Foreign Language do you understand? _____

Have you served an apprenticeship? _____ How long? _____ Trade? _____

Where served? _____ When served? _____

Mechanical Experience _____

EMPLOYMENT HISTORY: - Give Names and Addresses of ALL Previous Employers (including civil service)

If you are now working, present employer and reason for desire to quit must be included.

Also give reason for lapse of time where a period of termination of one place of employment does not fit into the next place of employment.

Employers Name and Address	Kind of Work	Wages Per Hour	Date Started	Date Left	Reason for Leaving

What Physical Defects have you?

Were you ever injured at work? Nature of injury

Do you Wear Glasses? Is your Hearing Good? Your Speech?

Additional Remarks:

Have you ever served in the Armed Forces of the United States?

State Rank and Branch of Service

Date of Discharge Reason

Are you now employed? Where?

I agree that any false statement in this application shall be sufficient cause for rejection or dismissal. I hereby grant permission to investigate any of the information included in this application and to submit to medical examination if required. The use of this blank does not indicate there are positions open and does not in any way obligate this Company.

Witness

**Sign
Here**

Signature of Applicant

DO NOT WRITE BELOW THIS LINE

INTERVIEW (Yes or No) Date Hour

Result of Interview

Acceptable for Employment? Starting Rate Starting Date Shift

Occupation Dept. Clock No.

Interviewed by Employed by

Approved by

PART VI

SALES

1. Introduction1.1 Background

The principal task of any business in a democracy is to provide for consumer wants and needs. A means to this end is the function of the sales organization. The business enterprise is founded for profit and since no business may persist indefinitely without it, the objective of the sales department should contribute directly to the attainment of net profit. Profit is derived from the selling operations by maintaining a satisfactory relationship between volume of sales, gross margins, and operating expenses. Therefore, the sales department must strive to secure that volume and range of product sales which yields the most satisfactory net profit, considering both the margin upon each unit of sales and the operating expense involved in procuring and maintaining sales.

It was with the above-mentioned function and objective well in mind that the study of Barclay's sales organization was conducted.

Barclay's sales function is organized as a separate entity under the name of Barclay Sales, Inc., with offices in New York City. In the past eighteen months, this functional group has undergone an organizational change in an effort to provide a more flexible foundation with which to meet rapidly

rising sales. Although the earnings of the company were not revealed, management did infer that since 1961 the company had made a profit each year and at an increasing rate. A more detailed organization review and discussion will follow later in this section.

1.2 General Description of Products

Barclay Home Products manufactures and markets six basic products: pillows, patchwork quilts, coverlets, mattress pads, comforters, and accessories which include dust ruffles, valances, and pinch pleat drapes. The accessories are produced specifically for the purpose of selling them in combination with coverlets, comforters and quilts as complete ensembles. Barclay is one of few companies offering ensembles and considers this ability an important selling point which distinguishes it from its competitors. In addition, the company produces a seventh line of similar products specifically designed for infants. Sleeping bags are presently being produced for the U.S. Army under government contract.

1.3 Sales Objectives

On the basis of conversation with top management, it is believed that Barclay's sales objectives are as follows:

1. Continuing growth. This is presently limited by plant facilities and difficulty in meeting delivery dates, as evidenced by the fact that production is now operating on a four week delivery schedule with the real possibility that

a five week schedule is imminent. It must be emphasized that this is occurring in an industry which customarily delivers in 7 to 14 days. With the sales organization generating more than enough orders in the quilting section to keep production operating at full capacity and behind scheduled delivery dates, the problem becomes one of not only production, but also sales. This situation does at first seem enviable, but in the quilting industry, where competition is exceedingly keen, such a position is destined to deteriorate due to the dissatisfaction of customers with delivery schedules.

2. Industry leadership — be the style leader and firm with the widest lines of selection. To be known as the style leader is certainly an enviable position for a firm to be in, but striving to have the widest lines of selection of products may actually erase the style leader image. Ultimately, the manufacturing process is governed by the customer's willingness to buy, and this, in turn, is conditioned by many factors involving quality, style, performance, and even on occasions the conscious desire of one customer to be different. However, among all these factors which affect the customer's willingness to buy, price is usually the most critical factor, and any reduction in manufacturing costs which is passed on to the customer in the form of a lower price is bound to have a beneficial effect on sales. That substantial savings in cost are obtainable through a selective reduction of seldom-sold products is beyond dispute. Savings at the sales end

will come from the ability to concentrate sales effort more effectively on a smaller range of each of the basic products. Recent researches by Professor Harold W. Martin of Rensselaer Polytechnic Institute, Troy, New York, have established that too great a variety confuses the customer and that, as a result, more time is spent in demonstrating a commodity with less resultant buying when the variety is excessive than when it is restricted. There is much evidence to support the thesis that sales achieved vary with the number of different commodities offered, somewhat in accordance with Exhibit VI — 1, and that best results (for total profit margin) are obtainable in the region marked "X". It is felt that Barclay is operating well down in the "Y" range.

3. Salesmen working exclusively for Barclay. This is felt to be a valid objective, but it cannot be achieved until the "Barclay" name becomes synonymous with quilted products. With the present effort being put forth on promotion and advertising, attainment of this objective would practically be impossible.

4. Become financially self-sufficient and thus remove the need for a "factor". This objective is certainly worth attempting to achieve from a purely financial viewpoint. However, other items must be considered before making a hasty decision. These are: credit risks of Barclay's customers, cost of operating own credit department, costs and ease of obtaining financing elsewhere, and that intangible measurement —

having instantaneous credit when needed.

It was apparent, after discussions with management in Cohoes and New York City, that the factoring agreement with William Iselin & Co., Inc., is not fully understood. It is evident that the costs are not validly appraised at regular intervals. With the limited time and facilities available, this group is not in a position to make definite recommendations concerning the use of a factor. However, it must be said that this lack of understanding by management of all the costs associated with utilizing a factor is at the very best a precarious position to be in. Costs associated with factoring should be fully understood by management in order to evaluate the desirability of factoring to the company, in comparison to alternative sources of money.

1.4 Problem Areas

With the aforementioned objectives in mind, the following areas have been identified as possible restraints against achieving these goals:

1. No plans for increasing the use of advertising.
2. Little use of market analysis.
3. Lack of effective coordination between the New York City office and the Cohoes plant.
4. No plans for increasing distribution outlets.
5. Possible poor customer relations due to late delivery service.

6. Lack of control over product variety.

1.5 Discussion

Before proceeding with the specifics of the above-defined problems, it is believed that the following discussion will assist Barclay's sales management in maintaining a positive attitude regarding the specific areas discussed.

The difference between modern sales management and the older rule-of-thumb sales management lies in the area of sales research, sales planning, and sales control.

To plan sales operations before plunging into the work of selling the product is nothing more nor less than common sense. The planning of sales effort prevents costly mistakes and makes the sales organization more effective. In the case of Barclay Home Products, which is in the unique position of the sales organization having direct control over production, this planning is essential to make the entire company more effective.

For example, if advertising is to be used, it must be planned long in advance to be useful. Four years ago, the Allis-Chalmers Corporation started a four year advertising program with a set yearly budget. The reason for this project was due to a survey which rated Allis-Chalmers low in imagination, innovation, and aggressiveness, traits which are valued highly in industry. Allis-Chalmers' sales over this period speak for the success of this program.

Sales analysis is exemplified by American Airlines' use of the computer in marketing. A day to day account of what has occurred the previous day, related to the goals of the sales organization, awaits the sales executive each morning. From this report the executive is currently informed of events which aid in his decision making and control. Needless to say, the report would be useless if not utilized by management.

Broadly, every sales organization is working toward an ideal proportion of personal salesmanship, advertising, and other means of selling, so that it can affect distribution at minimum cost and maximum profit in the long run. That such an ideal proportion exists is conjectural, but studies of the experiences of many companies seem to show that it is possible, and is usually the case, to have too much personal salesmanship and too little advertising, and that it is also possible to have too little personal salesmanship and proportionally too much advertising.

It seems that relying almost exclusively on personal salesmanship, as evidenced by Barclay sales, is putting the company in the awkward position of not being prepared for the future. To think that there is an unlimited source from which to choose salesmen possessing such outstanding characteristics as demonstrated by some of the sales managers in the New York City office, is pure folly. A simple correlation of sales over the past few years with the longevity and experience of

these salesmen would seem to indicate that the sales organization has not always enjoyed having salesmen of such caliber and experience. Sales management must realize that the company who adopts the "wait and see" attitude will never be the leader in the industry.

2. Barclay Home Products Sales Organization

2.1 Findings

1. Structure. Barclay Home Products Sales Corporation, with its office and showrooms located in New York City at 245 5th Avenue, is a separate corporation from Barclay Home Products in Cohoes, New York. Although the president of both corporations is Mr. Alex Buchman, the corporations exist as separate legal entities in order that certain tax advantages be realized. Hereafter, both corporations will be referred to as one and the same, Barclay. From its sales office in New York City, Barclay generates and controls the sales effort for its entire line of products with the exception of its infant line, which is handled by a special arrangement to be discussed in a later section. The sales organizational structure is shown in Exhibit VI — 2.

2. The sales managers. Each of the three sales managers has the direct responsibility of representing approximately one-third of the company's accounts. Accordingly, each of the managers is in charge of a number of salesmen who, in turn, directly represent the company in a specified and

exclusive geographical area. In all, there are a total of thirteen such areas.

Salesmen are evaluated and directed by their respective sales managers. Periodically, usually twice a year, the sales managers visit each of their salesmen in order to exchange ideas and accompany the salesmen on the road for several days. When, for some reason, additional consultation is required with a particular salesman, the sales manager will travel as necessary. It is not infrequent that a sales manager will become directly involved in finalizing a sale for one of his salesman's accounts. In such an instance, the salesman receives credit for the sale, nonetheless.

In a number of cases, sales managers deal directly with a few select customers. These customers fall into a category of accounts referred to as Resident Accounts that are often among the company's larger accounts and which normally have a main sales office in New York City. In addition, each manager has a number of collateral duties to perform. The sales managers are compensated on a salary basis which is usually supplemented by a year-end bonus.

3. The salesmen. The thirteen salesmen employed by Barclay are independent and, thus, do not carry the Barclay line exclusively, but as one of several noncompetitive lines. Exclusive salesmen are not utilized by the company because it is felt that their income could not be made attractive enough to maintain the caliber of salesmen now employed. In hiring

new salesmen, Barclay has been successful in attracting experienced men who have been well established professionally in the geographical area to which they have been assigned. New salesmen are indoctrinated in Barclay's procedures and product line by spending a number of days in the New York office and then being accompanied by their responsible sales manager in the field until they are familiar with the Barclay presentation.

The salesmen, being independent, travel and make calls as they personally see fit. Under such an arrangement, it is to be expected that potentially large accounts in metropolitan areas are well covered and that the relatively small retailer is not often visited, if at all. Under the current production limitations, such a situation is acceptable and, in a sense, beneficial. However, if the sales effort were to be expanded in the future, the small retailer would appear to be a virtually untapped resource.

Salesmen are compensated only on a commission basis, which in 1965 amounted to about 3.4% of their combined sales.

For the Barclay line, salesmen utilize a standard price list for mattress pads, pillows, patchwork quilts, and coverlets. A looseleaf notebook is used to keep a current listing of comforters in the line. All listed prices are rigid except where certain potential volume sales are involved, in which case the salesmen are instructed that they may vary a certain percentage from list price, subject to the approval

of the New York office. Salesmen receive a split commission on all sales made at reduced prices.

The salesmen are kept informed of changes in the product line, prices, and any other pertinent information by the use of salesgrams from the New York office. The telephone is also used freely in facilitating coordination within the sales organization.

In addition to price lists, the salesmen carry various samples of the line. The salesmen have just recently been given a complete set of printed folders, one for each of the quilt and coverlet patterns. Each folder has a picture of a bedroom with the particular pattern displayed and also a sample of the fabric. Folders will be utilized to show the new comforter line as soon as the new line has been selected. Although a seemingly minor change, the advantages of the new samples would appear great. For one, the use of these folders provides the advantage of compactness in storage for the salesmen. Previously, it was necessary for the salesmen to carry many bulky swatches representative of the Barclay line which, more often than not, were cut down to those items which the salesmen favored. In addition, the need for production to make sample swatches is now eliminated. The samples for the pillow line consist simply of a sample book of the various tickings used in construction. The mattress pads, being a familiar and somewhat standard item, do not require a sample.

2.2 Conclusion

As was mentioned earlier, in the past eighteen months the sales organization has undergone a substantial face-lifting. Although the structure itself is now relatively firm, some administrative and operational procedures are in a state of revision. As these procedures are formalized and responsibilities are further delegated throughout the organization, the president will hopefully find himself removed from a large portion of the detail and more able to devote his time and energies toward planning short and long range objectives as well as developing those programs necessary for their effective implementation. The current sales organizational structure is seen to be structurally sound and professionally competent and capable of generating all the sales that production can now handle. This is not to say that the efficiency of the operation cannot be improved, however.

2.3 Recommendations

1. Budget. It is recommended that an annual budget be drawn up for use by the sales organization. A budget would include such expenses as operating the office, paying salaried personnel, and advertising. Such a budget could be a valuable aid for internal planning and control.

2. Sales conference. It is recommended that the use of an annual meeting in New York City of the entire sales organization be adopted. It is felt that such a meeting would be highly beneficial from the standpoint of the enthusiasm

generated and the general exchange of information which would take place among salesmen, not to mention the exchange between salesmen and management. These benefits, it is believed, would more than offset the expense.

3. The Distribution System

3.1 Findings

1. Methods of distribution. Approximately 85% of Barclay's sales are delivered directly to the retailer, being shipped by commercial truck from the mill in Cohoes. Of the remaining 15% about 6%, representing the infant line, is shipped to Barclay-Freitag in New York City who sells all of Barclay's infant line; the remaining 9% is shipped to jobbers' warehouses and institutions such as hospitals. Because shipping costs are generally paid by the buyer, selling effectiveness as a rule is limited to an area encompassed by an estimated radius of 750 miles around the Cohoes mill. Beyond that range, sales fall off rapidly due to the lower shipping costs of competitors. Nevertheless, Barclay remains competitive in certain other regions of the country owing to the appeal of its products. In Los Angeles, California, the company owns and operates a warehouse from which it distributes to its accounts in the Far West. The costs of shipping and operating the warehouse are reportedly covered by the markup of all goods distributed by the warehouse.

2. Locker stock. For several accounts, Barclay has agreed to maintain in the customer's store an on-shelf inventory. Under such an arrangement, called "locker stock", the customer is billed on a basis of a month-end inventory balance. Such an agreement offers the buyer obvious advantages and would appear to be a concession on the part of the seller unless, of course, the prices charged made up for the added expense to the seller.

3. Government contracts. Barclay has a general policy of bidding on all government contracts which it considers to be within its capabilities. In general, such contracts are considered very desirable. The company is currently working under several government contracts. All government work, which is now for the supply of sleeping bags, is done at Barclay's mill in Hoosick Falls where approximately forty persons are employed. The level of production is naturally very unpredictable from year to year. In 1965, government work accounted for about 9% of gross income.

4. Celanese. Barclay is one of four companies currently under contract by the Celanese Corp. to manufacture and sell Serene pillows. This arrangement contributed over 15% to Barclay's sales revenue in 1965, making it the second largest contributor of all of Barclay's products. The length of duration of the contract is indefinite; however, the loss of the agreement for any reason is not currently anticipated.

3.2 Recommendations

It is recommended that the "locker stock" agreements be evaluated to determine their value to the company. Because no figures were seen by the group in order to make such a study, no definite recommendation can be made. It is merely a considered opinion that the arrangement is not to Barclay's benefit.

4. Customer Relations

4.1 Findings

1. Account variety. Barclay has on the average about 1,500 active accounts. These accounts are comprised of a large variety of merchandisers some of whom are chain stores, department stores, specialty stores, discount houses, club plans, stamp plans, incentive plans, mail order houses, jobbers, and small retail outlets. Because of the variety of accounts handled and also Barclay's policy to do all it can to conform to the customer's wishes, a significant number of special situations have developed over the years. As a result, it is estimated that about 20% of the orders handled require some degree of special handling. Because the majority of these orders cannot be filled from finished goods inventory, it is not infrequent that interruptions in scheduled production runs occur accompanied by all the associated headaches. Lack of a formal expediting procedure further complicates matters and results in almost every special order being a small crisis.

2. Order handling. Orders are received and processed

daily by Barclay Sales in New York City. All orders are screened by Mr. Clarence Greenberg who checks them for discrepancies and assigns a shipping date. Shipping dates are assigned, except in special cases, based on the delivery lead time which is given sales by production in Cohoes. In the event of an order requiring special attention, this generally being determined by the sales manager having responsibility for the account, coordination is facilitated by a telephone call to the mill, and in the event of a rush order an acceptable shipping date is agreed upon. Once the day's orders have been processed and typed onto standard production orders, they are mailed to the mill in Cohoes and a copy sent to the factor for approval, which is assumed approved unless notified. There is no effort made by sales to regulate the daily volume of orders mailed to Cohoes.

3. Service. Good service in Barclay's business is synonymous with prompt delivery. As was discussed earlier, normal delivery expected by most customers is 7 to 14 days. With production currently running "wide-open" and with monthly orders in excess of capacity, service has slipped to four weeks. Despite this service, Barclay sales have shown no signs, as yet, of slowing down. One reason for this is that customers are informed by salesmen in the field and sales managers in New York City of what the delivery schedule is, and the customer appreciates an honest estimate of expected shipping time. It is, therefore, critical that Barclay meet

these "promised" dates and, if they cannot be met, that a phone call be made or a memorandum be sent to keep the customer advised of delays, and when possible, why. Currently, there appears to be no legitimate effort being made to follow up on past due open orders, at least by the sales organization.

4. Returns and minimum shipping quantities. Barclay's policy on returns is stated on the standard order form carried by all salesmen. Unjustified returns occur infrequently and are not felt to be a problem.

Minimum shipping quantities are specified for all products on salesmen's price lists and extra service charges are specified to discourage less than minimum orders.

4.2 Recommendations

1. Avoid special orders. Because of the added production and handling cost associated with special orders, it is recommended that new and strict guidelines be established in an effort to drastically reduce the number of special arrangements entered into by salesmen and sales managers. A reduction in special orders is felt essential to the improvement of the present efficiency of the company and more fundamentally to insure its future effectiveness in meeting company objectives.

2. Expediting. In order to efficiently handle special orders, a formal expediting procedure should be established. Such a procedure should insure that responsibility for these orders be assigned to a specific individual who also

has the authority to take the necessary actions to accomplish the task in a timely manner. The responsibility and authority for handling and coordinating all special orders should be vested in one man in Cohoes and one in the New York Sales Office. It would be up to these two individuals, working together, to see that all such orders be expeditiously handled and to have the answer why if they are not.

3. Order follow-up. A formal procedure should be established to insure the timely follow-up and control of all critical or past due open orders. Such a procedure would appear to be readily available through the proper utilization of the weekly computer run-off titled "open orders by due date". Once again, the assignment of two individuals, one in sales and one in production, to keep this run-off accurate and up to date with reasons written on the report as to what the hold-up is (such as awaiting piece goods) and the best estimate of the revised shipping date. Having such a document available would permit the sales managers and/or salesmen to keep the customer informed of the status of his order which cannot be met on time and, thus, eliminate many embarrassing telephone calls.

5. Marketing

5.1 Findings

1. Market analysis. The total annual market for those products which Barclay manufactures is estimated to be

about 75 million dollars. Looking at the company's total sales revenue in 1965, minus government, it can be assumed that Barclay holds about 8% of the market. On the basis of Barclay's 1965 sales volume in each of its lines, the following are estimates by the president of the company's relative position among its competitors:

Quilted Mattress Pads, Patchwork	
Quilts, and Coverlets	- 3rd
Comforters	- 4th
Pillows	- 8th

Barclay is one of the few manufacturers in the industry to produce all of these products. If the company were to be ranked in the industry taking this into consideration, it could probably be ranked third over-all.

No formal market research is done by Barclay.

There are basically two reasons for this. First, the owners believe that their experience in the business gives them a sound basis on which to forecast sales trends in the industry as well as among their competitors. Because of the fact that the majority of the large buyers and sellers of the industry have offices in New York City, the exchange of information among all interested parties is greatly facilitated. Secondly, limited capital restricts expenditures in this area.

Forecasting of sales is done on the basis of historical data which is compiled by the company's data processing facility and, to some extent, on the basis of projections received from a few large buyers. These projections are received

with some regularity from the mail order and other catalog accounts and from several large chain and department store accounts. Unfortunately, projections from customers currently represent only a small portion of Barclay's total sales volume. With these two sources of information plus management's intuition, the sales organization makes projections in December and June for the following six months. As is shown in Figures VI — 3 through VI — 6, projections in 1965 were very erratic for certain periods and products. For the first quarter in 1966, similar results are evident, particularly in that the demand for pillows and mattress pads were far greater than expected.

2. Competition. Barclay has a continuous program under way to appraise its competitors' products and promotional programs. Such an effort is considered essential in order for the company to stay abreast of competition and one step ahead, if possible. The sales managers and the president all keep an eye open in support of this program. Some salesmen contribute to the program but, in general, their total contribution is felt to be marginal.

5.2 Conclusions

Accurate sales forecasting can be a valuable tool for the use of management in decision making. Forecasting aids the controller in analyzing cash flows and maintaining liquidity, production in planning and meeting personnel needs

and in production scheduling, purchasing in acquiring raw materials, and sales in directing advertising and promotional efforts so as to maximize utilization of production facilities. Forecasting, if it shows a trend contrary to actual sales and if it is being used, can be worse than no forecasting at all. Certainly, if it is to be of value as a decision making tool, forecasting requires a program of continuous evaluation and revision.

5.3 Recommendations

1. Sales forecasts. It is recommended that forecasting techniques be revised. The current method seems to lack the deliberateness which could make projections reliable and useful. Its major inadequacy appears to be the need for keeping projections for each product updated. By establishing trend lines on a continuing monthly basis, projections can be kept current. In addition, sales and production should work together on these projections so that sales will appreciate production's limitations and do what it can to influence these trends to the best possible advantage. Again, an individual must be made directly responsible for the forecasting function.

In recent years analytical methods to aid management in the decision making process are being used with increasing regularity and success. One such method developed by two employees of Arthur Anderson and Company of New York City for a textile manufacturer of seasonal style-goods appears to have distinct applicability to Barclay's forecasting needs, once

the company converts to a finished goods inventory production method. The method provides an accurate forecasting method which is essential to prevent excessive obsolescence costs associated with style-goods left in inventory at the end of the season. If Barclay is interested in investigating this particular method, its authors are D.B. Hertz and K. M. Schaffir of Arthur Anderson and Company. The name of the article which appeared in the January-February, 1960, issue of Operations Research Journal is "A Forecasting Method for Management of Seasonal Style-Goods Inventories".

Each sales manager should do all he can to solicit, from his large accounts, quarterly projections. A sound program to encourage the submission of these projections would seem to be essential to effective production scheduling and, consequently, better service.

2. Competitor evaluation. It is further recommended that a specific individual in the sales office be assigned the responsibility for running and coordinating a continuous program for appraising competitors. Such a program should be all-encompassing and entail the analyzing of competitors' products, prices, promotional techniques, and any other pertinent information. Strong support for the program should be enlisted from all persons in the sales organization and, in particular, from salesmen. Periodic briefings summarizing findings would be made to top management in order to make them better equipped to make decisions.

6. Advertising and Promotion

6.1 Findings

1. Advertising. Barclay spends a small amount of cash annually on advertising. Such a policy seems to characterize the industry with few exceptions, due to the typically limited capital available. As stated by the president, the company that can eventually afford a real advertising program and, as a result, establish itself as the leader in the industry, will easily outdistance its competitors.

The major portion of the advertising in which Barclay participates is in conjunction with Celanese, the manufacturer of the synthetic fillers, FORTREL and Celaccloud. Such advertising is directed at the consumer in the form of full color advertisements in newspapers having large metropolitan circulations. The cost of this advertising to Barclay is roughly \$20,000 a year, and it is thought to be effective. In addition, \$3,000 to \$4,000 are spent annually on three or four advertisements in industry trade journals. This is considered a minimum expenditure in this type of advertising, and its value is questioned by Barclay's top management.

2. Promotion. While doing only a minimum of consumer advertising, Barclay emphasizes its promotional effort through a program of public relations in order that a company reputation of friendliness, trust, and confidence be established with buyers in the industry. The responsibility for and means of establishing such an image rests with each salesman, the

sales managers, and the president. As an aid in advancing this policy, the New York sales office has two attractive showrooms which are used to display each of Barclay's products to potential buyers. An office with a similar showroom has recently been opened in Chicago's Merchandise Mart.

6.2 Conclusions

As was discussed earlier, the record books attest to the fact that advertising done in the right way can and does work to build a company's name. Certainly it is not necessary to sell Barclay on this fact, as is made evident by Mr. Buchman's statement. Nonetheless, perhaps some added encouragement to make the step, in the firm belief that it will more than pay for itself in the long run, is in order. Before such a program could be adopted, additional sales volume must not only be desired, but the production capability of meeting the increased demand must be available. Once these two criteria are met, an advertising program can be adopted as a means of developing an exclusive Barclay market.

6.3 Recommendations

It is recommended that an advertising program be developed to sell the Barclay name to the consumer market.

Several recommendations follow which are no more than a listing of present plans and, in some cases, an expansion of current promotional practices. First, the plan to

move Barclay's sales office and showrooms to uptown Manhattan in the vicinity of 40th Street, the merchandising center of the industry, is endorsed. Secondly, it is recommended that as part of promoting its patchwork quilts, coverlets, and comforters, Barclay consider promoting the displaying of these goods in retail stores in a more appealing way, such as on racks using hangers to facilitate the customer's selection. Finally, the use of pre-printed orders by a few of Barclay's chain store and department store accounts would appear to be not only a good way to sell a particular style in volume, but at the same time act as an aid, almost equivalent to a projection, to more accurate forecasting. It is recommended that a promotional program to encourage the use of pre-printed orders be pursued by those sales managers having as resident accounts large department stores and chain store accounts having central sales offices.

7. Barclay Products

7.1 Findings

1. Marginal product lines. Of the products manufactured by Barclay, interviews indicate that at least two product lines are suffering losses at the present time: accessories and comforters. It is interesting to note that while Barclay considers the production of accessories important in order to retain the sales advantage of being able to offer ensembles, the ensembles are sold only to the small

volume accounts and accessories accounted for only 1.9% of 1965 sales revenue. This was apparently insufficient to make the line profitable. Sales volume and seasonal nature of sales in the comforter line are considered contributing factors to this line's margin profitability.

A survey of 1965 sales figures reveals the percentages of total sales revenue contributed by each product line. (Exhibit VI — 7) The graph shows cumulative percent of sales revenue contributed by each product in order of decreasing magnitude. Four of the products contribute 78% of sales revenue while the last three, the infant line, coverlets, and accessories, account for only 12%. A further analysis of this type based on profit would be more meaningful; however, necessary figures were not made available for such an analysis.

2. Product variety effects. The nature of the industry in which Barclay is involved requires offering the customer a wide variety of style and color within each product line in order to remain competitive. Style is varied in general by offering different stitching patterns, edging trim, and material pattern. For a given product, additional variations of color and size are offered for each style. As in the clothing industry, the possible variations available are probably infinite and determination of the style-color mix for a given product is a major problem, due to unpredictability of consumer taste from year to year. This unpredictability causes the company to maintain 25% of its production

to customer specifications. The remaining activity is devoted to producing to Barclay's pre-determined specifications, primarily to demand and not finished goods inventory. The company presently produces on an order-to-order basis, primarily because of the tremendous product variety it offers. It does not make extended production runs on a given style absent customer orders for fear that the finished goods will not sell. Such a policy creates production scheduling and inventory problems such that at present, in the quilting department, the company is working to a 4 week backlog, whereas the present industry average is approximately 7 to 14 days.

Exhibit VI — 8, constructed from various sales lists, is provided to show the magnitude of the variety of the company's products. The company is convinced that this variety is an essential requirement to maintain its competitive position.

A study of 1965 sales of quilts by style, color, and size was made in order to determine the relative effect of various styles on total sales. An IBM report of actual sales by style and size during 1965 was examined. Data are tabulated in total units sold by size and style, that is, a style number is established for each size of each style and total unit sales figures for each style number are reported. Color options within style numbers were disregarded. This data was manipulated in order to establish the percent of total sales units contributed by each style number. The

resulting figures were plotted cumulatively in order of descending magnitude against percentage of total style units available. The data was plotted for only those styles that sold more than 400 units. The resulting graph (Exhibit VI — 9) indicates that 17% of the styles sold accounted for 80% of total sales, and that 42.5% of the styles sold accounted for 95% of total unit sales. There were 265 different styles actually sold in 1965. In other words, 46 styles accounted for 80% of the sales units, and 113 styles accounted for 95% of sales. It is interesting to note that 93.2% of all sales were accounted for by products which sold over 400 units and, out of 265 possible, only 37.5% or about 98 individual styles did this well. This would seem to indicate that roughly 2/3 of the variety of patchwork quilts sold are accounting for only 7% of sales and, thus, are non-essential items in the line. It was noted, in passing, that a particular color usually dominated the sales of each numbered style. It has not been determined in this study whether particular styles or particular sizes account for the majority of sales. If size is the major factor, then it would appear obvious that low selling sizes should not be offered except by special order, and then only on a minimum order basis. Size requirements may be predictable on the basis of examination of bedding manufacture's sales data (popular mattress sizes, blankets, etc.). It is probable that high sales of a particular quilt size would correlate favorably with high sales of a compatible

mattress size.

If style is the determining factor, predictability becomes a more involved problem. The point is that this study suggests an area for more extensive examination which cannot be undertaken by this group, due to time limitations. It is obvious from this example that quilt variety could be considerably reduced without extreme reduction of sales units or revenue. Variety reduction would provide for simpler and easier production scheduling, reduction of job shop efforts, more efficient utilization of facilities by utilization of economic lot size production batches, and reduction of lead time and backlog.

3. Control of variety, determination of the product line. The company attempts to control the variety of its basic products by establishing a list of available products for the fiscal year and distributing this list to its sales force, with the stipulation that only the products listed will be sold during a given period. The list of products includes style, pattern, and sizes which are available for a given basic product. The product listing is developed in the New York office informally by holding conferences with the buyer, president of the company, sales manager, and an independent style, pattern, and color consultant. These people meet continually and examine available patterns and styles, and choose those which they consider to be possible sellers. The meetings are held continuously with an eye toward planning

the product variety one to two years ahead of production. Once a definite decision is made for a given line, samples are made up in the factory and sent to the New York office where more appraisals are made. The survivors of this screening are then entered on the product sales catalogue. Opinions of the larger customer accounts, such as Penney's or Macy's, are not actively solicited; however, if a buyer of one of these companies happens to be in the office at the time of a style conference, his opinions are considered. Once the listing has been developed, it is distributed to the salesmen, together with small samples, at the beginning of the sales year and is to be considered by the sales force as the final list. Large customer accounts occasionally request a particular pattern which they desire and sometimes provide the material to be used. When one or more of the styles decided upon gives indication of being unsuccessful, it is dropped from the list and replaced by a different style. 25-30% of sales are made to special order (style, pattern, etc., specified by the customer and different from the product list), and the remaining sales are made from the list.

The procedure indicates that the company is attempting to solidify its product line in order to simplify the production process and reduce the tendency towards a "job shop" operation. However, the fact that $\frac{1}{2}$ - $\frac{1}{3}$ of the sales are made to special order would indicate that its catalogue development efforts could be improved.

4. Product costing. Barclay presently uses product standard costs in an absorption accounting system. This has been in effect for approximately three years and accomplishes for Barclay essentially what the standard cost concept was designed to do. That is, it provides management at all levels with information with which it can intelligently measure and control variances in manufacturing costs by department. Standard costs are established for raw materials, direct labor, and overhead for each individual variation of each basic product. Material price, usage variances, labor usage variances, and manufacturing overhead variances are developed by basic product and submitted to the cognizant managers. Management meets formally on a monthly basis for the purpose of examining the variances and discussing corrective measures. Raw materials price standards are changed each time the price of raw materials changes. Although such a policy would appear to be quite cumbersome, management feels that keeping the standards as close to actual costs as possible aids computation of estimated earnings performances on a continuous basis. A weekly report including sales revenue, less commissions and standard costs of goods sold, is submitted to top management as an approximate measure of performance. These reports are accumulated and variances applied on a monthly basis to provide more accurate indications of profit. It is suggested that the weekly report provides little useful information. Without incorporating variances, the figures provided would

always indicate a profit equal to sales revenue less standard cost of goods sold and commissions, which would closely approximate the arbitrary markup figure which averages 30 to 50 percent of total standard cost, which gives no measure of profitability. The only useable figures in this report are total sales and commissions.

5. Product profitability. Barclay apparently uses Absorption Costing methods to generate financial reports for management decision making. Overhead burdens are absorbed per direct labor dollar in determining cost of goods sold and the resultant figures applied to sales revenue to determine gross margin. Actual figures for analysis were not made available, and so few conclusions can be made. As suspected by looking at inventory levels, personal interviews with management personnel indicated that the company suspects it is losing money in two departments, the comforters and the accessories. It was implied, however, that the company did not know for sure why money was being lost nor how much. The present absorption costing procedures do not generate sufficient information to determine for sure what the answers to these questions are. Accessories are sold only to those customers who desire ensembles and are not sold by themselves, separate from ensembles. Only the smaller accounts bother purchasing the ensemble combinations and, therefore, the implication is that accessory sales are probably too small to cover fixed costs, and contribute to profits. The same is

suspected in the comforter line. Management believes that both products are contributing to overhead, however, and are presently unwilling to drop either of the lines. Interviews indicate that the company is looking for new products to produce in order to supplement the ones that are presently losing money, but little consideration has been given to dropping the losing lines altogether and/or replacing them with different products.

7.2 Conclusions

1. Variety reduction. As discussed before, there is ample room within the patchwork quilt product line for considerable reduction of variety without seriously affecting total yearly sales volume. Although time and the present accounting system have prevented detailed analysis of the possible effect on profits of the implied reduction, it is intuitively feasible that such action could both increase total yearly profits and percent of return on investment for the following reasons:

1. The high production set up costs and running costs for small batches would be eliminated for those items that are slow sellers.

2. Piece goods inventories of raw materials would be reduced along with associated costs.

3. Production scheduling would be simplified by eliminating the short run items, contributing favorably to present efforts to reduce backlog.

4. Committing production to top sellers would enable the company to produce to finished goods inventory vice order by order, further reducing scheduling problems and loss of good will associated with customer complaints concerning backlog.

It would be foolish to propose blindly eliminating all those items selling below a given volume without first performing a thorough cost analysis. Although figures were not available, it is suspected that profit margins of some of the slow sellers may be sufficiently high to justify the higher cost of small production runs. Such margins will only be realized if the low sales volume is planned for, and appropriate quantities of raw materials purchased.

7.3 Recommendations

1. Variety control. The company is convinced that it needs wide variety to maintain its style leadership image. It is suggested that the company ask itself seriously whether it is striving for an image or for profit, or as mentioned in a previous section, whether this wide variety actually enhances the image. Thus, it should carefully evaluate its sales figures in a manner similar to that shown in Section 7.1.2, but more detailed in that it consider costs and whether size or style is the determinant factor contributing to low sales volume.

2. Small orders. Develop a positive and realistic attitude towards limits on small, special orders, and adhere to them. Require minimum order sizes on specials and refuse

the order if the minimum is not purchased. If necessary, explain the cause and reasons to the prospective customer.

3. Field information. Salesmen know (or determine) almost immediately what the "hot" items are going to be and soft peddle the losers, leaving the "losing" samples in the trunk of the car when they go to make a sale. Solicit their opinions early in the style year, and do not make the items that will not sell. The IBM tabulations will eventually indicate what the salesmen could have told the company almost immediately! Remember that under the present distribution system, the company is largely represented and influenced by the independent salesmen and not vice versa.

4. Update forecasts. Pre-program sales volume quarterly for each style/size variation and purchase raw materials and schedule production in accordance with the program. For example, suppose the New York office decides on a certain style and, by whatever means at hand, estimates sales for the year to be 1000 units. Due to seasonal variations, it might be determined that during the first quarter 20% of the expected volume would be sold, during the second 30%, during the third 40%, and fourth, 10%. When such a planning estimate has been established, the entire purchasing and production effort should be committed to the quarterly phases, and sales results compared on a weekly basis with the plan. Significant variations from the plan could then be acted upon in a more intelligent and timely manner than is presently being

accomplished without the plan.

5. Produce to forecasts. Once the plan has been established, commit production via the plan to finished goods inventory via economic lot size calculations. There will be miscalculations, and some finished goods will be sold at a loss. If such is the case, the style should be dropped completely and emphasis placed on the high performers. However, inventories will be built immediately and defensive reaction to incoming orders will be eliminated, reducing backlog.

6. Cost analysis. The present absorption costing system makes it difficult, if not impossible, to accurately determine to what extent sales of the various product lines are meeting variable manufacturing costs. The controller is able to determine aggregate end of period profits and losses for the company as a whole but is unable, at present, to determine to what extent each department is making or losing money. The company suspects it is losing money in comforters and accessories, but the controller was not able to show how much. Such difficulties are characteristic of absorption costing.

It is recommended that Barclay consider adopting direct costing methods, either to augment the present procedure or to replace it. In particular, a direct cost analysis of the two questionable departments should be undertaken immediately in order to determine why their profit performance has been marginal. Management feels that although unprofitable,

these products are covering their overhead, and therefore is hesitant to discontinue or replace them. A direct cost analysis would provide an accurate determination of the extent to which the products are contributing to payment of overhead. It may be that in actuality these products are not contributing as much as the management thinks. The direct cost analysis will provide the information that management needs in order to make an intelligent decision concerning required action on pricing, sales volume, and advisability of continuing production of these products.

STYLES VS. SALES

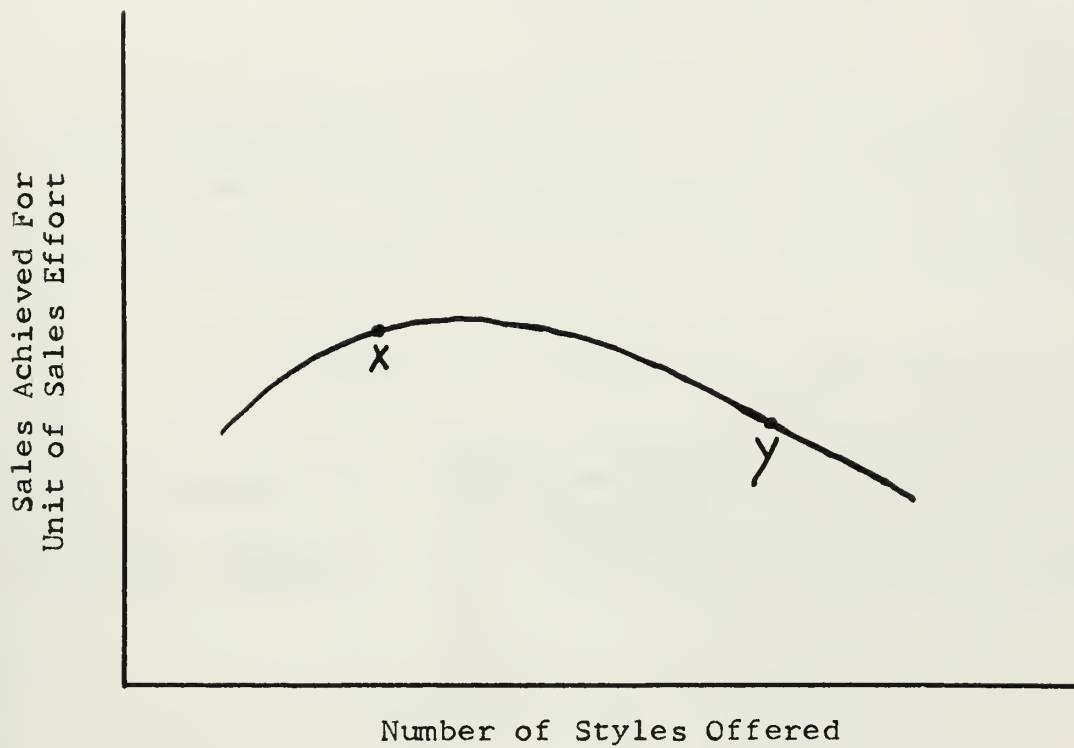


EXHIBIT VI — 1

Source: Rawson, Sir Stanley, "Variety Reduction", extract from FBI Review, London, December, 1959.

SALES ORGANIZATION
BARCLAY HOME PRODUCT SALES CORPORATION
New York, N.Y.

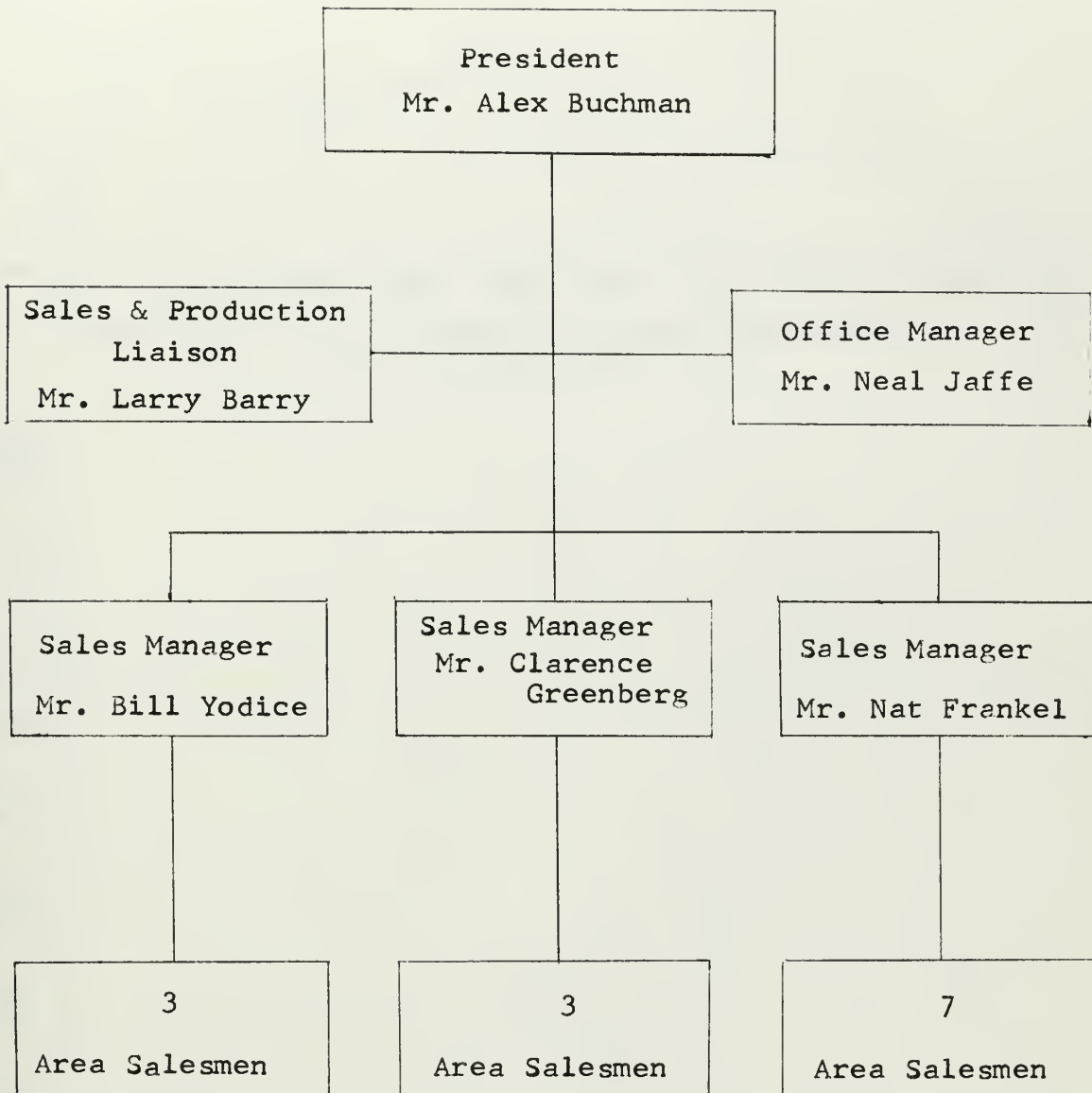
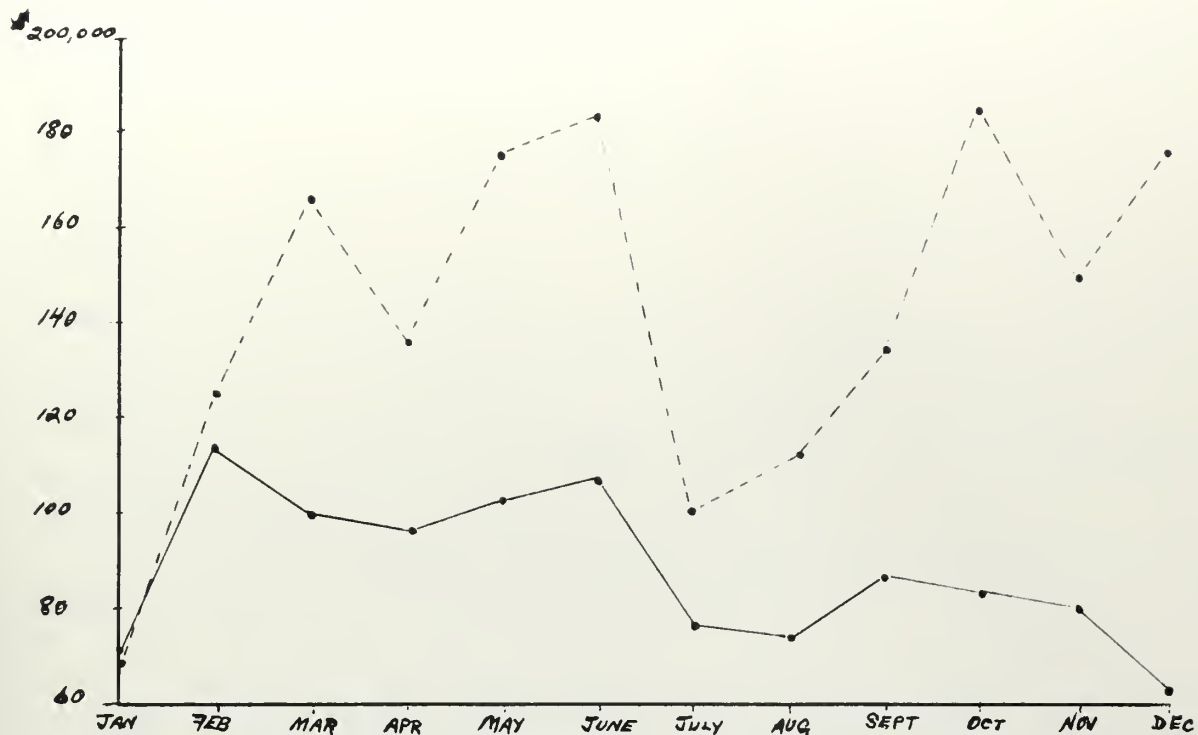
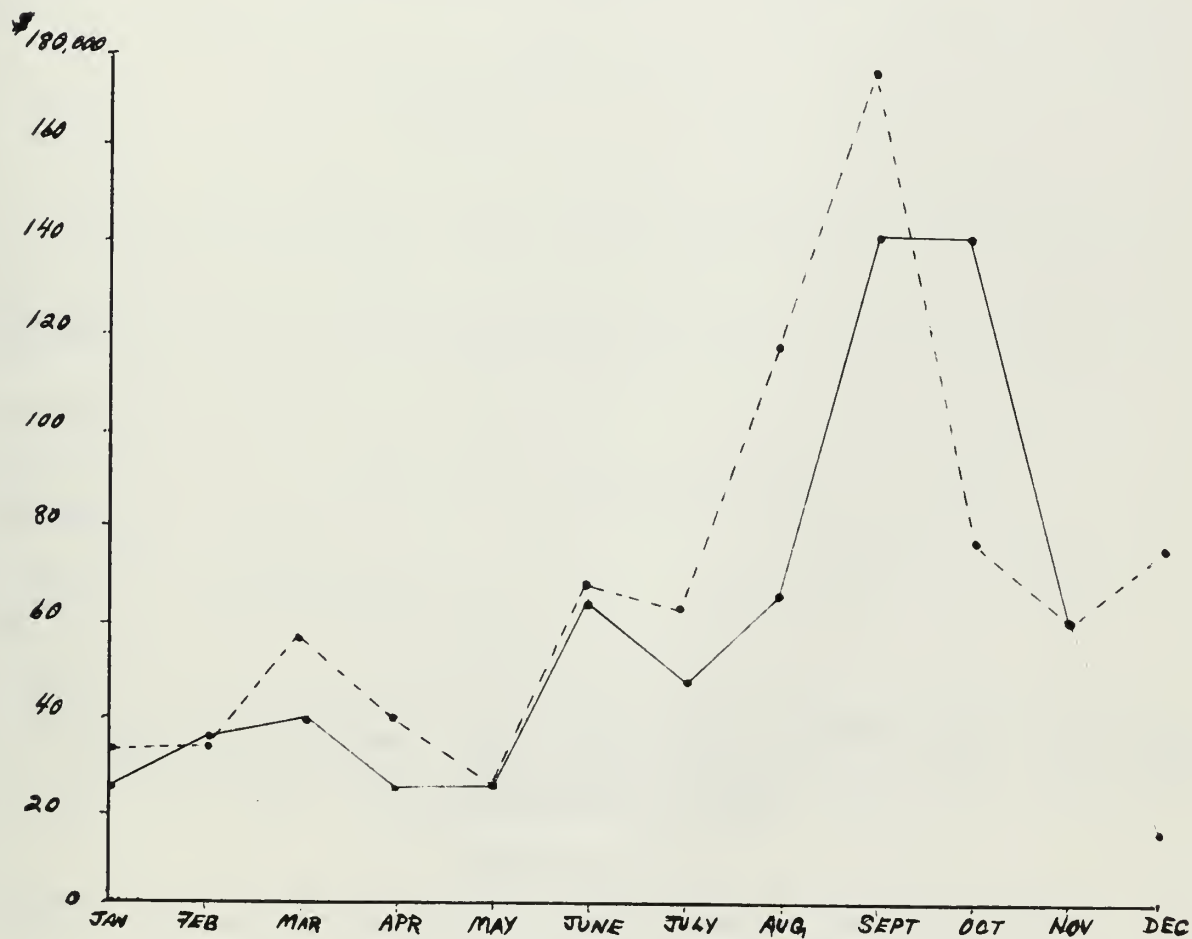


EXHIBIT VI — 2

Source: Interview with President of Barclay Home Products, Inc.



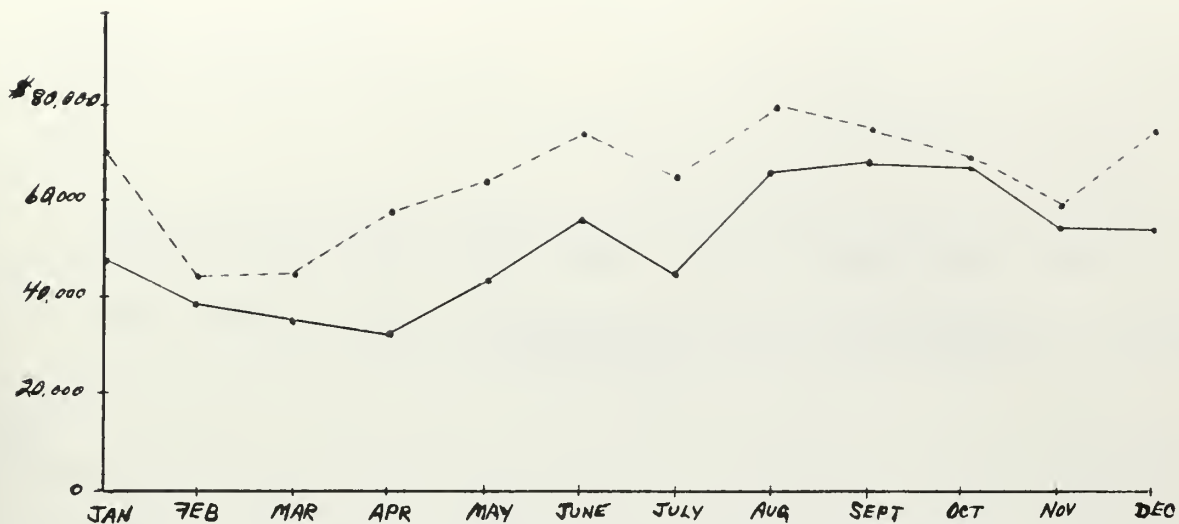
1965 Dollar Value of Orders (—) and Projections (---) Per Month of Quilts



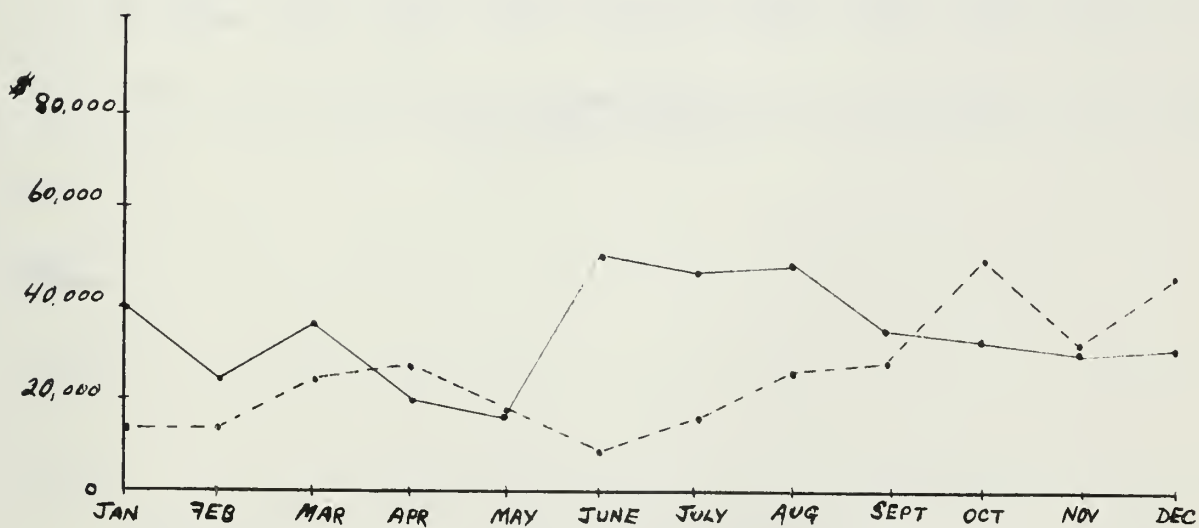
1965 Dollar Value of Orders (—) and Projections (---) Per Month of Comforters

EXHIBIT VI — 3

Source: From 1965 Barclay Shipment Summary Report File.



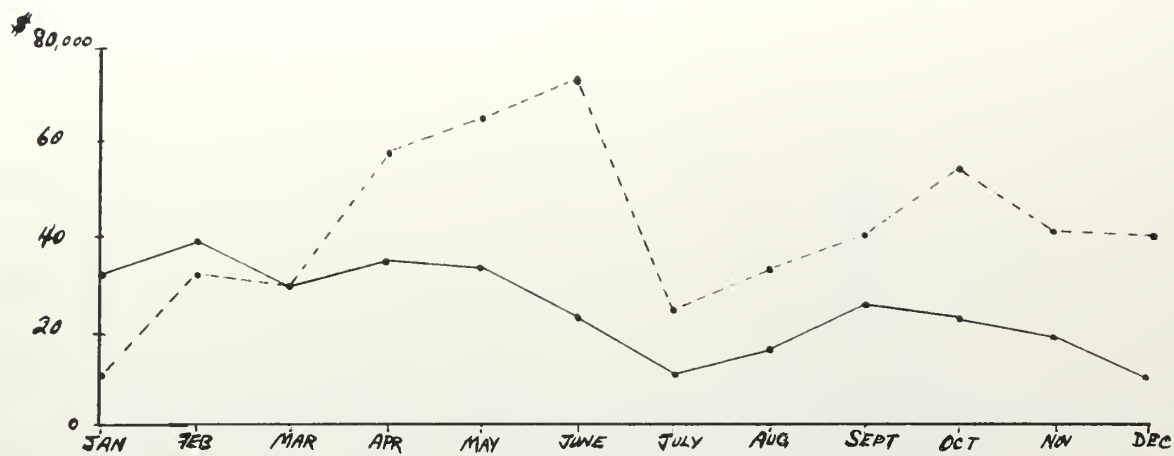
1965 Dollar Value of Orders (—) and Projections (---) Per Month of Feather and Down Pillows



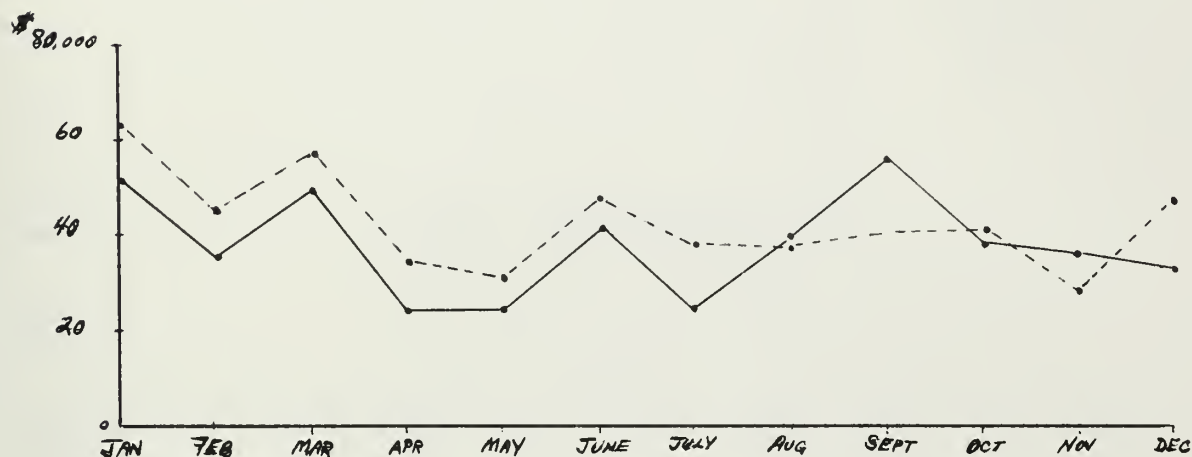
1965 Dollar Value of Orders (—) and Projections (---) Per Month of Synthetic Pillows

EXHIBIT VI — 4

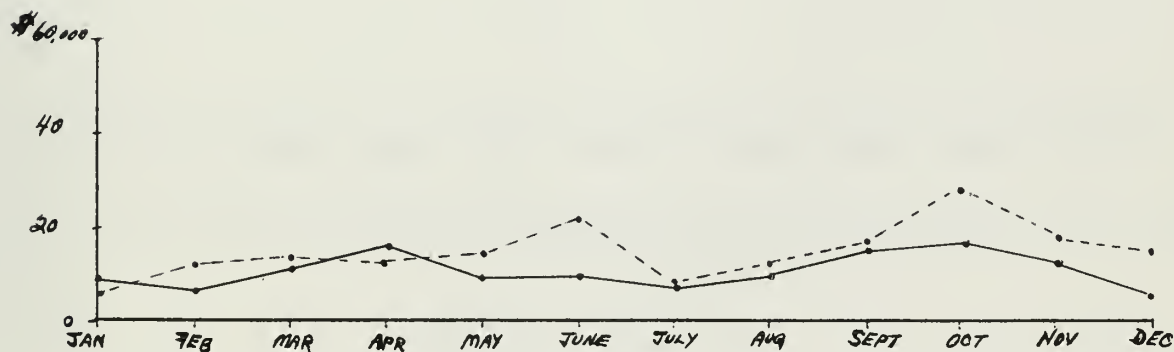
Source: From 1965 Barclay Shipment Summary Report File.



1965 Dollar Value of Orders (—) and Projections (---) Per Month of Coverlets



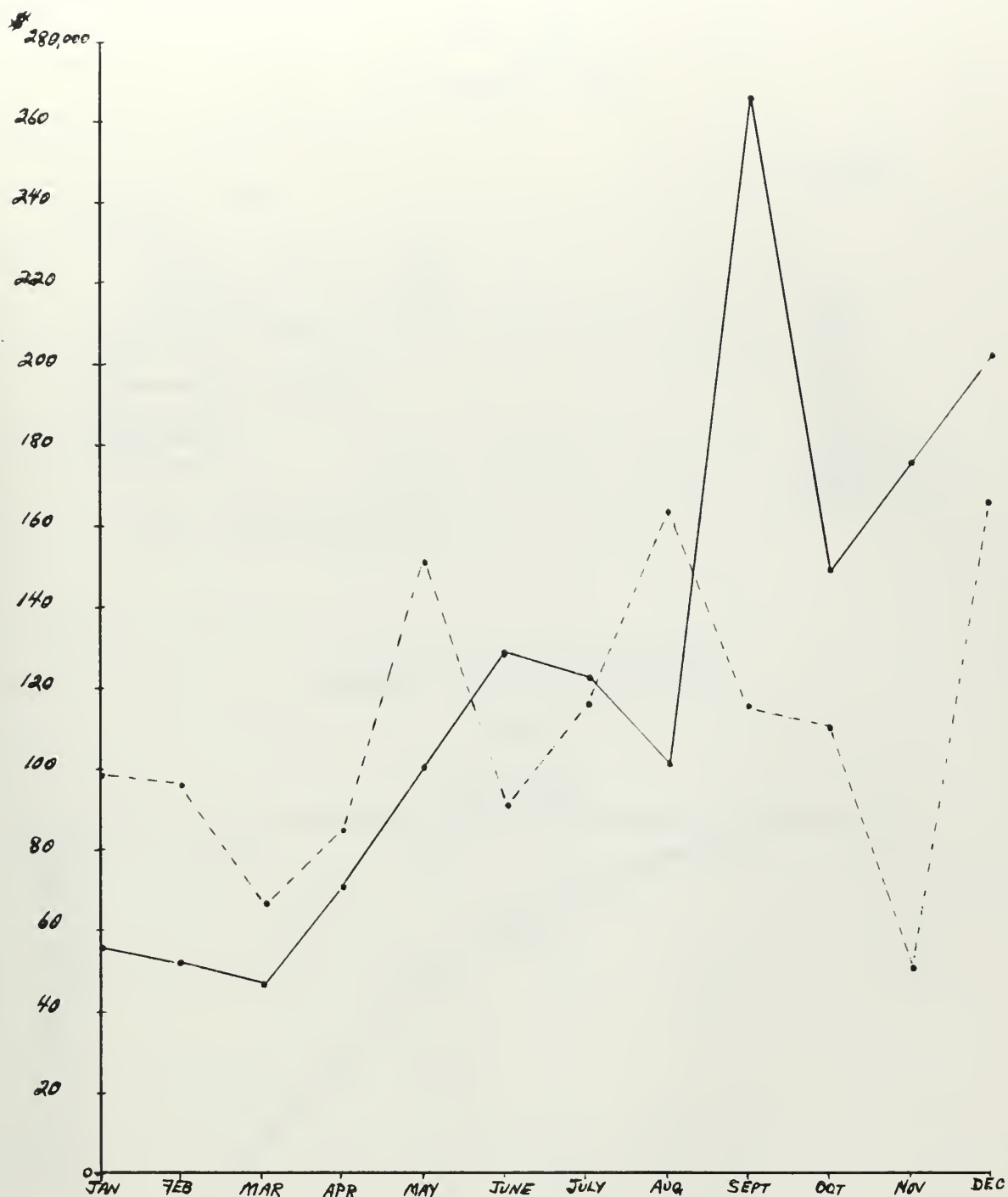
1965 Dollar Value of Orders (—) and Projections (---) Per Month of Infant Line



1965 Dollar Value of Orders (—) and Projections (---) Per Month of Accessories

EXHIBIT VI — 5

Source: From 1965 Barclay Shipment Summary Report File.



1965 Dollar Value of Orders (—) and Projections (---) Per Month of Mattress Pads

EXHIBIT VI — 6

Source: From 1965 Barclay Shipment Summary Report File.

1965 SALES
BY PRODUCT LINE

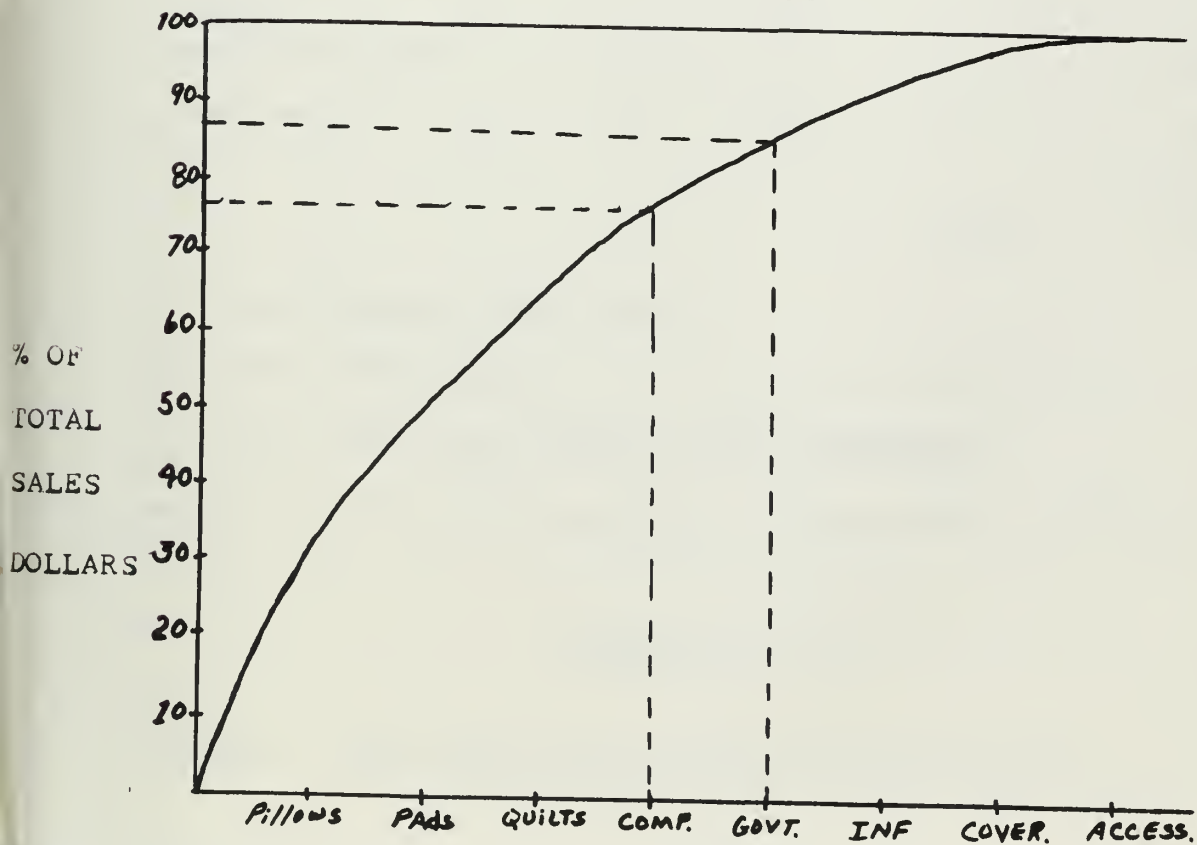
Mattress Pads		% OF SALES
Pillows		21.5
Serene	15.3	
Feather & Down	8.9	
Synthetic	<u>6.1</u>	30.3
Patchwork Quilts		15.2
Comforters		11.1
Government Contract		9.1
Infant Line		6.6
Coverlets		4.3
Accessories		<u>1.9</u>
		100.0

100% = \$6,859,936.00

PERCENT OF SALES DOLLARS

VS.

PRODUCTS



Source: Interview with
President and various
salesmen in Barclay's
New York Sales Office.

PRODUCTS

EXHIBIT VI — 7

STYLE/COLOR SIZE COMBINATIONS
(FROM BARCLAY SALES LIST)
ACCESSORIES, INFANT LINE OMITTED

<u>Product</u>	<u>No. Of Styles</u>	<u>Avg. No. Colors</u>	<u>Avg. No. Sizes</u>	<u>Possible Variations</u>
Patch Quilts ¹	28	3	3	252
Mattress Pads ²				
Cotton Fill	7	1	3	21
Dacron Fill	6	1	9	54
Nylon Fill	6	1	2	12
Comforters ¹	30	3	2.5	225
Pillows ³				
Dacron	5	1	3	15
Feather & Down	44	1	3	132
Coverlets ¹	8	3	2	48
Total				759

1. From Current 1966 Lists.
2. From 1965 Lists.
3. List Used Dates Back to 1961 Unchanged.

CUMULATIVE PERCENT OF UNITS SOLD
VS.
STYLE NUMBERS IN ORDER OF POPULARITY
(PATCHWORK QUILTS)

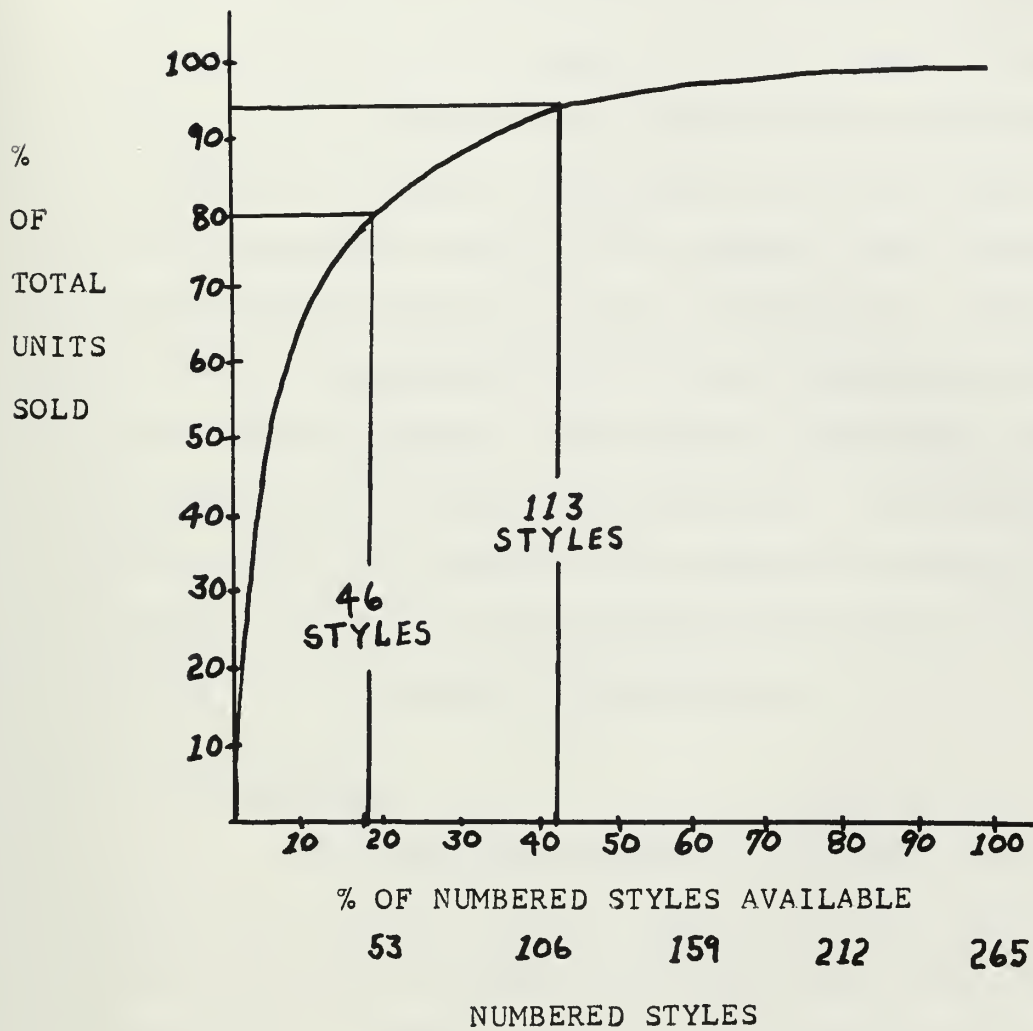


EXHIBIT VI — 9

Source: From Barclay computer runoff of total units sold (patchwork quilts, 1965).

PART VII

SUMMARY

1. Overview1.1 Environment

The current business and economic environment has largely jumbled the relative significance of various management criteria as they apply to Barclay Home Products, Inc. As a result, practices and rules-of-thumb which are firmly entrenched at Barclay are in many cases no longer appropriate. The established practices are premised upon accustomed circumstances of plentiful labor and materials, ample capital facilities, comparatively low cost financing availability, and a buyer's market. The current environment has largely reversed each of these circumstances. Consequently, Barclay must rethink and redefine its operating criteria in many respects if it is to take fullest advantage of the opportunities offered by the present circumstances.

1.2 Objectives

To define the optimal (or at least satisfactory) operating criteria, Barclay might best begin again to define from scratch its primary objectives, the goals which will contribute to those objectives, and the operating methods and criteria which will best achieve those goals in the present environment.

1.3 Staffing

Many of the goals listed herein can only be adequately achieved through the addition of new supervisory and staff personnel and functions. This is admittedly expensive; however, the point applies here that "It costs money to make money.". To economize by avoiding the indirect labor (overhead) costs of adequate supervision and staff activity or by use of low cost and ill-qualified personnel would ultimately prove to be costly rather than economical.

2. Review

2.1 Production

Production volume and efficiency are handicapped in several respects. The specific authority and responsibility of individual supervisors is ill defined. Each one thinks that these matters are defined and mutually understood, but each one has a different set of definitions and there is no written, authoritative statement of functions, responsibilities, or authorities to resolve such differences.

Detailed problems treated in this report include:

1. Excessive double handling of finished goods.
2. Inadequate forecasts of production requirements.
3. Lack of organized, coordinated arrangements for efficient machine maintenance and repair.
4. Identification and correction of the sources of defective products.

5. An unstable work force causing production bottlenecks which shift from day to day.

6. Manual, decentralized production scheduling, in practice if not in theory.

7. No program to develop qualified replacements for personnel in key functions.

2.2 Purchasing

Coordination and control of purchasing activities is entirely inadequate. This results in excessive and costly inventories of diverse raw materials, repair parts, and supplies. Recommendations in the report are primarily in the matter of centralized control and analytical prediction. It is the belief of this team that significant savings in both operating expenses and working capital requirements can be achieved in this manner.

2.3 Records, Reports and Schedules

Barclay has adequate facilities and competent personnel to handle this function. However, other operating personnel have not been required to convert from old, manual records and controls and they fail to provide adequate, accurate, and timely data to the electronic data processing (EDP) facility. This causes EDP records, reports, and schedules to be inaccurate and ineffective which verifies the general lack of confidence in EDP and causes further lack of support, inadequate, inaccurate and late data. This vicious circle can

be broken and the potential benefits of EDP can be realized, only if top management will forcefully insist that it be done, that the necessary data be provided and expeditiously processed. The EDP center can facilitate this correction by shifting its work hours so as to accept data at times most convenient to the sources, for example at the end of the work shift or work day, and then process the time sensitive data before the following work day. However, this is not practical unless and until EDP can be assured of accurate and complete data delivered on schedule.

2.4 Personnel

Personnel management at Barclay is premised on the assumption of plentiful, qualified, and low cost labor supplies with resulting emphasis on labor quantity more than quality. In the conditions of the present labor market, this results in labor turnover and shortages which cripple productive efficiency. Specifically, the following labor management problems are dealt with in the report:

1. The extent, causes, and costs of labor turnover.
2. Job definition, valuation, and pricing.
3. Employee effectiveness and enthusiasm.
4. Selection and retention of desirable employees.
5. Personal development and job training of employees to fill future openings in key jobs.
6. Employment attractions other than monetary.

2.5 Marketing

The marketing function at Barclay is oriented to the assumption that the ultimate objective is sales volume. In the constraints of the present environment, this overlooks the fact that sales volume is only a means to company profitability. It is the profits which support the financial strength of the firm and ultimately the primary objectives of the firm. Given the present constraints of limited production capacity, present sales philosophy detracts from optimum profitability of the firm. The various aspects of this difficulty are dealt with earlier in this report. Specific problems treated earlier include:

1. Sales volume is limited by production capacity.
2. Sales' insistence upon an extremely wide range of product variety reduces potential production volume.
3. Product variety hampers efficiency in procurement, storage, inventory control, production scheduling, packaging, shipping, and sales.
4. Effective sales order follow-up is needed for late deliveries.
5. Market analysis and demand prediction need improvement.
6. The profitability of locker-stock marketing needs to be analyzed.
7. The costs and value of factor financing and services have not been adequately determined.

8. The possibilities of direct consumer advertising.
(Consider accompanying higher markups to cover advertising expense.)

3. Recommendations

3.1 Policy Statement

It is recommended that the owners of Barclay adapt the following statement of objectives and goals to their actual desires, and then apply it as a working guide for all company activities. The resulting statement of company policy should be put in writing and published as an official guide for all management and supervisory personnel. The statement should be reviewed annually and revised as necessary to keep it current and pertinent. Specific individuals should be given authority and responsibility to plan for, implement, and make monthly reports on the progress toward each goal.

POLICY STATEMENT - BARCLAY HOME PRODUCTS, INC.

1. The primary objective of this firm is to provide for the long term well being of a stable force of satisfied employees, of an effective management staff, and of the owners. These three objective facets are interdependent, and none can be fully achieved without the others.

2. The present operating goals in pursuit of the company objectives are listed below. They are to be achieved by the end of fiscal year 1966, '67 or '68, as indicated. The person or office listed is responsible to plan for, implement, and make monthly reports of progress

toward that goal.

- a. Double the 1965 dollar volume of sales. FY68
- b. Expand production volume capacity to 210% of the 1965 production as follows:
 - (1) Increase active facilities - +70% FY67
 - (a) Cherokee Plant +60%
 - (b) Hoosick Falls Plant +10%
 - (2) Improve production volume through greater efficiency at all plants, to 124% (+8% per year); (170% x 124% = 210%)
- c. Reduce labor turnover. No more than 20% of employees appearing on the company payrolls during any 12 month period may have left the company by the end of that period. FY68
- d. Insure a net profit margin before taxes of at least 5% on every product sold, except closeouts and seconds. FY68
 - (1) Identify and eliminate low demand products (less than 400 units per year). Qtrly
 - (2) Reduce product variety 20% per year for 3 years.
 - (3) Implement direct cost accounting system and identify standard costs and economic order quantities for each style. FY66
- e. Develop effective, centralized control and responsibility over:
 - (1) productive facilities layout, improvement, and maintenance FY67
 - (2) all purchasing activities FY66
 - (3) industrial relations and personnel management FY66
 - (4) production scheduling and control FY66
- f. Expeditiously dispose of closeouts and seconds to minimize carrying costs FY66
- g. Initiate direct consumer advertising of selected products with sufficient markup to cover the expense. FY67
- h. Make updated forecasts of sales:
 - (1) quarterly by style and color FY66
 - (2) monthly by style and color FY67
- i. Implement automatic sales order follow-up to advise customer ten days in advance when delivery date cannot be met. Advise

customer of alternate products available,
reason for delay, extent of delay.

FY66

3.2 Staffing

1. Requirements. It is recommended that Barclay establish appropriate staff and supervisory functions to implement the prior recommendations at the earliest opportunity. However, in filling such positions, the prime consideration must be a high level of ability and qualification rather than quick availability or minimum salary. It must also be considered that overloading any one man with too many diverse functions may preclude his performing any of those functions well.

It is particularly recommended that the following functional positions be established, clearly defined, competently manned, and given full management support:

1.1 Separate Manufacturing Superintendents for Cohoes, Cherokee, and Hoosick Falls.

1.2 A company Personnel Manager with an assistant at Cherokee. Provide a clerical assistant for each.

1.3 A company Purchasing Officer to coordinate all purchasing activities, either under the Controller or directly under Mr. Louis Buchman.

1.4 Depending upon the results achieved by the recent placement of production scheduling under the Controller, it may be advisable to staff production scheduling as a separate function.

1.5 A Maintenance and Engineering Manager with cognizance over facility design, layout, maintenance, and repair.

2. Sources. Staffing a newly created position in a growing firm can pose serious problems in defining the essential qualifications and abilities required as well as reasonable expectations of the function. To minimize this problem, and yet get a head start on implementing some of the recommendations in this report, with minimum expense and risk, the following suggestion is offered: There are numerous graduate students, at Rensselaer Polytechnic Institute and other schools in the vicinity, who have both academic training and diverse practical experience in all phases of business and industry. Many of these could be interested in a part time job or in a summer job or in a fixed period, fixed fee contract to implement specified recommendations in this report. Specifically, the recommendations for a detailed job evaluation, a merit evaluation plan, and a survey and revision of the incentive pay plan to make it more effective could likely be handled in this way. The same approach could be applied to the development and computer programming of a detailed procedure for efficient and frequent prediction of sales and of inventory requirements.

THE HISTORY OF THE UNITED STATES

The history of the United States is a story of growth and change. It begins with the first people who lived on this land, and continues through the years of exploration, settlement, and the struggle for independence. The story is one of a people who have built a nation of freedom and opportunity, and who have fought to protect those values through the years.

The early years of the United States were marked by a period of rapid growth and expansion. The country was founded on the principles of liberty and justice for all, and these principles have guided the nation through the challenges of the past. The story of the United States is a story of a people who have built a nation of freedom and opportunity, and who have fought to protect those values through the years.

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